

=> file reg

FILE 'REGISTRY' ENTERED AT 11:31:38 ON 18 AUG 2006
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=> display history full 11-

FILE 'HCAPLUS' ENTERED AT 10:54:29 ON 18 AUG 2006

L1 8130 SEA KANO ?/AU
L2 26503 SEA ITOH ?/AU
L3 2277 SEA KITAOKA ?/AU
L4 174 SEA YODO ?/AU
L5 30132 SEA SHIBATA ?/AU
L6 2 SEA L1 AND L2 AND L3 AND L4 AND L5

FILE 'HCA' ENTERED AT 10:56:44 ON 18 AUG 2006

L7 104989 SEA SIDECHAIN? OR SIDE#(2A)CHAIN? OR LARIAT? OR PENDANT?
L8 124494 SEA GRAFT?

FILE 'HCAPLUS' ENTERED AT 10:57:17 ON 18 AUG 2006

SEL L6 1-2 RN

FILE 'REGISTRY' ENTERED AT 10:57:39 ON 18 AUG 2006

L9 16 SEA (24980-41-4/BI OR 25248-42-4/BI OR 25322-69-4/BI OR
L10 9 SEA L9 AND PMS/CI
L11 7 SEA L9 NOT L10

FILE 'HCA' ENTERED AT 11:17:45 ON 18 AUG 2006

L12 100529 SEA L10
L13 626379 SEA POLYETHER# OR POLYESTER# OR POLY(A) (ETHER# OR
ESTER#) OR POLYACRYLIC# OR POLYMETHACRYLIC# OR POLYACRYLA
TE# OR POLYMETHACRYLATE# OR (ACRYLIC# OR METHACRYLIC# OR
ACRYLATE# OR METHACRYLATE#) (A) (POLY OR POLYM? OR
COPOLYM? OR HOMOPOLYM? OR TERPOLYM? OR RESIN? OR GUM#)
L14 37939 SEA (L12 OR L13) AND (L7 OR L8)
L15 23245 SEA ?CARBODIIMID?
L16 228 SEA L14 AND L15
L17 213162 SEA PIGMENT?

FILE 'LCA' ENTERED AT 11:19:08 ON 18 AUG 2006

L18 3311 SEA (COLOR? OR COLOUR? OR PIGMENT? OR DYE? OR STAIN? OR
PAINT? OR CHROMA# OR CHROMOGEN? OR CHROMOPHOR? OR TINCT?
OR TINT?)/BI,,AB

FILE 'HCA' ENTERED AT 11:19:20 ON 18 AUG 2006
L19 95324 SEA CARBONBLACK# OR (CARBON# OR C) (2A) BLACK#
L20 10 SEA L16 AND L17
L21 24 SEA L16 AND L18
L22 10 SEA L16 AND L19

FILE 'REGISTRY' ENTERED AT 11:22:47 ON 18 AUG 2006
E CARBON/CN
L23 1 SEA CARBON/CN
E GRAPHITE/CN
L24 1 SEA GRAPHITE/CN

FILE 'LCA' ENTERED AT 11:23:06 ON 18 AUG 2006
L25 1588 SEA L23 OR L24 OR (ACT# OR ACTIV?) (2A) (CARBON# OR C) OR
GRAPHIT? OR CHARCOAL? OR CARBONIFEROUS? OR CARBONACEOUS?
OR BLACKLEAD# OR LAMPBLACK# OR GASBLACK# OR CHANNELBLACK#
OR STOVEBLACK# OR CHIMNEYBLACK# OR BONEBLACK# OR
ANIMALBLACK# OR AMORPH? (2A) (CARBON# OR C)
L26 7 SEA BLACK# (2A) (LEAD# OR LAMP# OR GAS## OR CHANNEL# OR
STOVE# OR CHIMNEY# OR BONE# OR ANIMAL#)

FILE 'HCA' ENTERED AT 11:28:36 ON 18 AUG 2006
L27 682750 SEA L25 OR L26
L28 5 SEA L16 AND L27
L29 33 SEA L20 OR L21 OR L22 OR L28
L30 24 SEA L29 AND 1840-2002/PY, PRY

=> file hca

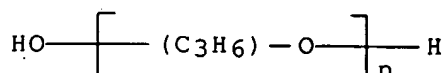
FILE 'HCA' ENTERED AT 11:32:00 ON 18 AUG 2006
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=> d l30 1-24 cbib abs hitstr hitind

L30 ANSWER 1 OF 24 HCA COPYRIGHT 2006 ACS on STN
141:164950 Light-shielding photosensitive resin composition and its
cured product. Ito, Kazunori; Kitaoka, Naoyuki; Nabeta, Tomohiro;
Hirasawa, Tamano (Sakata Inx Corp., Japan; Toyo Gosei Co., Ltd.).
Jpn. Kokai Tokkyo Koho JP 2004219978 A2 20040805, 32 pp.
(Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-280467 20030725.
PRIORITY: JP 2002-379329 20021227.
AB Title compn., which is useful in providing black matrix for color
filter, comprises a photosensitive resin and titanium black which has

been surface-treated with a **carbodiimide** compd. having a **carbodiimide** equiv. of 100-50,000.

- IT **25322-69-4DP**, Polypropylene glycol, **polycarbodiimide**
-polyester-polyethers
(compn. contg. **carbodiimide** compd.-treated titanium
black for black matrix of **color** filter)
- RN 25322-69-4 HCA
- CN Poly[oxy(methyl-1,2-ethanediyl)], α -hydro- ω -hydroxy-
(9CI) (CA INDEX NAME)



- IC ICM G03F007-004
ICS C08K009-00; C08L101-00; G02B005-20
- CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and
Other Reprographic Processes)
Section cross-reference(s): 37
- ST light shielding photosensitive compn titanium black
carbodiimide compd treatment
- IT Optical filters
(compn. contg. **carbodiimide** compd.-treated titanium
black for black matrix of **color** filter)
- IT Polyoxyalkylenes, preparation
(compn. contg. **carbodiimide** compd.-treated titanium
black for black matrix of **color** filter)
- IT **Polyesters**, preparation
(**polycarbodiimide-**, block; compn. contg.
carbodiimide compd.-treated titanium black for black
matrix of **color** filter)
- IT **Polyesters**, preparation
(**polycarbodiimide-**, **graft**; compn. contg.
carbodiimide compd.-treated titanium black for black
matrix of **color** filter)
- IT **Acrylic polymers**, preparation
(**polycarbodiimide-polyesters-acrylic**
polymers; compn. contg. **carbodiimide**
compd.-treated titanium black for black matrix of **color**
filter)
- IT **Polycarbodiimides**
(**polyester-**, block; compn. contg. **carbodiimide**
compd.-treated titanium black for black matrix of **color**
filter)

- IT **Polycarbodiimides**
 (polyester-, graft; compn. contg. carbodiimide compd.-treated titanium black for black matrix of color filter)
- IT Polyoxyalkylenes, preparation
 (polyester-polyimide-; compn. contg. carbodiimide compd.-treated titanium black for black matrix of color filter)
- IT Polyimides, preparation
 (polyester-polyoxyalkylene-; compn. contg. carbodiimide compd.-treated titanium black for black matrix of color filter)
- IT **Polyesters**, preparation
 (polyimide-polyoxyalkylene-; compn. contg. carbodiimide compd.-treated titanium black for black matrix of color filter)
- IT 124-04-9DP, Adipic acid, **polycarbodiimide-polyesters** 502-44-3DP, ϵ -Caprolactone, **graft polycarbodiimide-polyesters** 4457-71-0DP, 3-Methyl-1,5-pentanediol, **polycarbodiimide-polyesters** 25322-69-4DP, Polypropylene glycol, **polycarbodiimide-polyester-polyethers**
 (compn. contg. carbodiimide compd.-treated titanium black for black matrix of color filter)
- IT 25086-15-1, Methacrylic acid-methyl **methacrylate copolymer** 65697-21-4, Benzyl methacrylate-methacrylic acid copolymer 67653-78-5, Dipentaerythritol hexaacrylate homopolymer 147076-20-8, Dipentaerythritol hexaacrylate-pentaerythritol triacrylate copolymer 290815-18-8, HP 100 (photoresist) 731016-17-4 731016-18-5
 (compn. contg. carbodiimide compd.-treated titanium black for black matrix of color filter)
- IT 7631-86-9, Silica, uses 122026-93-1, Titanium black 13R
 (compn. contg. carbodiimide compd.-treated titanium black for black matrix of color filter)

L30 ANSWER 2 OF 24 HCA COPYRIGHT 2006 ACS on STN

141:158588 Treated titanium black, treated titanium black dispersions, and chemical compounds for titanium black treatment. Ito, Kazunori; Kitaoka, Naoyuki; Nabeta, Tomohiro (Sakata Inx Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2004217885 A2 20040805, 27 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-278647 20030723. PRIORITY: JP 2002-379329 20021227.

AB The present invention relates to treated titanium black obtained by treating the titanium black surfaces with carbodiimide compds. with ≥ 1 carbodiimide group and carbodiimide equiv. 100-50,000. Thus, 316 parts isocyanate group-contg. polycarbodiimide with carbodiimide

equiv., 115.7 parts poly(3-methylpentyladipate) diol 115.7, and 16 mg tetra-Bu titanate were heated at 100° for 5 h, 84.6 parts polycaprolactone having terminal carboxylic acid groups was added therein and reacted at 80° for 2 h, 375.5 parts propylene glycol monomethyl ether acetate was added therein to give a 40%-solids **carbodiimide** compd. with no. av. mol. wt. 4200 and **carbodiimide** equiv. 1583, 50 g amorphous silica-coated Titanium Black 13R was dispersed in 450 g water, 15 g of the resulting **carbodiimide** compd. soln. and 170 g propylene glycol monomethyl ether acetate were added therein and reacted at 90° for 8 h, dried at 80° for 2 h to give surface-treated titanium black, 48.0 parts of which was mixed with 52.0 parts propylene glycol monomethyl ether acetate, 35.0 parts the resulting dispersion was mixed with 30.0 parts a polyurethane varnish and 35.0 parts a mixed solvent, showing good dispersion stability and elec. resistance $\geq 10^{13}$ for a printing ink film.

IT **24980-41-4DP**, Polycaprolactone, carboxy-terminated, reaction products with isocyanate-contg. **polycarbodiimide** and **polyester** diols **39751-34-3DP**, Adipic acid-3-methyl-1,5-pentanediol copolymer, diols, reaction products with isocyanate-contg. **polycarbodiimide** and polycaprolactone
(assumed monomers; prepn. of **carbodiimide** surface-treated titanium black)

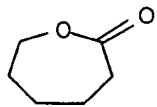
RN 24980-41-4 HCA

CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 502-44-3

CMF C6 H10 O2



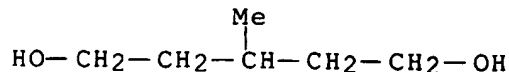
RN 39751-34-3 HCA

CN Hexanedioic acid, polymer with 3-methyl-1,5-pentanediol (9CI) (CA INDEX NAME)

CM 1

CRN 4457-71-0

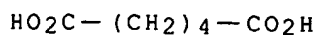
CMF C6 H14 O2



CM 2

CRN 124-04-9

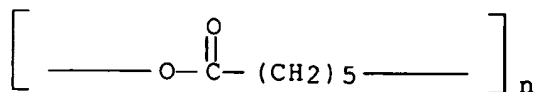
CMF C6 H10 O4



IT **25248-42-4DP**, Polycaprolactone, carboxy-terminated, reaction products with isocyanate-contg. **polycarbodiimide** and **polyester** diols **25322-69-4DP**, Polypropylene glycol, carboxy-terminated, reaction products with polycarbodiimides and **polyester** diols **58991-77-8DP**, Adipic acid-3-methyl-1,5-pentanediol copolymer, sru, diols, reaction products with isocyanate-contg. **polycarbodiimide** and polycaprolactone
(prepn. of **carbodiimide** surface-treated titanium black)

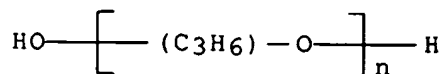
RN 25248-42-4 HCA

CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



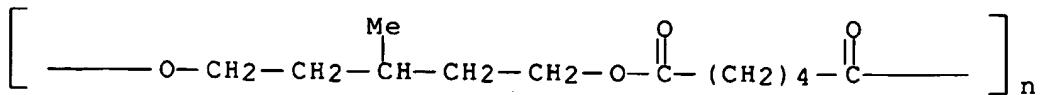
RN 25322-69-4 HCA

CN Poly[oxy(methyl-1,2-ethanediyl)], α -hydro- ω -hydroxy-
(9CI) (CA INDEX NAME)



RN 58991-77-8 HCA

CN Poly[oxy(3-methyl-1,5-pentanediyloxy(1,6-dioxo-1,6-hexanediyloxy(9CI) (CA INDEX NAME)



IC ICM C09C001-36

ICS C09C003-06; C09C003-10; C09C003-12

CC 42-6 (Coatings, Inks, and Related Products)

Section cross-reference(s): 74, 76

ST treated titanium black dispersion chem compd treatment;
polyester polycarbodiimide coated titanium black
dispersion ink compn

IT Polyesters, uses

(acrylic, polycarbodiimide-; prepn. of carbodiimide surface-treated titanium black)

IT **Acrylic polymers,** uses

(carboxy-terminated, reaction products with polycarbodiimides and **polyester** diols; prepn. of **carbodiimide** surface-treated titanium black)

IT Silanes

(elec. insulators, titanium black coated with; prepn. of **carbodiimide** surface-treated titanium black)

IT **Acrylic polymers, uses**

(graft, polycarbodiimide-; prepn. of
carbodiimide surface-treated titanium black)

IT Binders

(ink compns.; prepn. of **carbodiimide** surface-treated titanium black)

IT Polyesters, uses

Polyethers, uses

(polycarbodiimide-, graft; prepn. of carbodiimide surface-treated titanium black)

IT Polyesters, uses

(polycarbodiimide-; prepn. of carbodiimide surface-treated titanium black)

IT Polyurethanes, uses

(polyester-, binder for inks; prepn. of carbodiimide surface-treated titanium black)

IT Polycarbodiimides

(polyester-, graft; prepn. of carbodiimide surface-treated titanium black)

IT Acrylic polymers, uses

Polyoxyalkylenes, uses

(polyester-, polycarbodiimide-; prepn. of carbodiimide surface-treated titanium black)

IT **Polycarbodiimides**
 (polyether-, graft; prepn. of carbodiimide surface-treated titanium black)

IT **Polyesters, uses**
 (polyoxyalkylene-, polycarbodiimide-; prepn. of carbodiimide surface-treated titanium black)

IT Dispersion (of materials)
 Glass substrates
 Resists
 Surface treatment
 (prepn. of carbodiimide surface-treated titanium black)

IT Polyoxyalkylenes, uses
 (prepn. of carbodiimide surface-treated titanium black)

IT Inks
 (printing; prepn. of carbodiimide surface-treated titanium black)

IT **Polycarbodiimides**
 (reaction products with polyester diols and carboxy-terminated polycaprolactone; prepn. of carbodiimide surface-treated titanium black)

IT Electric insulators
 (titanium black coated with; prepn. of carbodiimide surface-treated titanium black)

IT **Pigments, nonbiological**
 (treated; prepn. of carbodiimide surface-treated titanium black)

IT 7631-86-9, Amorphous silica, uses
 (amorphous, elec. insulator, titanium black coated with; prepn. of carbodiimide surface-treated titanium black)

IT **24980-41-4DP, Polycaprolactone, carboxy-terminated, reaction products with isocyanate-contg. polycarbodiimide and polyester diols 39751-34-3DP, Adipic acid-3-methyl-1,5-pentanediol copolymer, diols, reaction products with isocyanate-contg. polycarbodiimide and polycaprolactone**
 (assumed monomers; prepn. of carbodiimide surface-treated titanium black)

IT 136020-57-0P, Adipic acid-isophoronediamine-isophorone diisocyanate-neopentyl glycol copolymer
 (composed of actual and assumed monomers, binder for ink; prepn. of carbodiimide surface-treated titanium black)

IT 122026-93-1, Titanium Black 13R
 (pigment, surface-treated; prepn. of carbodiimide surface-treated titanium black)

IT 112540-76-8, Titanium black

(**pigment**; prepn. of **carbodiimide** surface-treated titanium black)

IT 105-59-9DP, Methyl-diethanolamine, reaction products with polycarbodiimide and **polyester** diols **25248-42-4DP**, Polycaprolactone, carboxy-terminated, reaction products with isocyanate-contg. **polycarbodiimide** and **polyester** diols **25322-69-4DP**, Polypropylene glycol, carboxy-terminated, reaction products with polycarbodiimides and **polyester** diols **58991-77-8DP**, Adipic acid-3-methyl-1,5-pentanediol copolymer, sru, diols, reaction products with isocyanate-contg. **polycarbodiimide** and polycaprolactone (prepn. of **carbodiimide** surface-treated titanium black)

IT 67653-78-5P, Dipentaerythritol hexaacrylate homopolymer (resist binder; prepn. of **carbodiimide** surface-treated titanium black)

IT 65697-21-4, Benzyl methacrylate-methacrylic acid copolymer (resist binder; prepn. of **carbodiimide** surface-treated titanium black)

IT 9003-07-0, P 2161 (substrate; prepn. of **carbodiimide** surface-treated titanium black)

L30 ANSWER 3 OF 24 HCA COPYRIGHT 2006 ACS on STN

140:289965 Adhesive film for sealing metal terminal for lithium battery. Mochizuki, Yoichi; Okushita, Masataka (Dainippon Printing Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2004095543 A2 20040325, 20 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2003-283295 20030731. PRIORITY: JP 2002-228430 20020806.

AB The sealing film for metal electrode terminals protruding from a laminated battery package, contg. an inner hot adhering polyolefin resin layer and a metal foil barrier layer, is a biaxial extended poly(ethylene naphthalate) film covered with polyolefin on both sides, with the polyolefin at least on 1 side being an acid modified polyolefin.

IC ICM H01M002-06
ICS H01M002-08; H01M010-40; C09J007-00; C09J123-26

CC 52-1 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Epoxy resins, uses
Polyesters, uses
(adhesion promotor; adhesive film for sealing metal terminal for lithium battery)

IT **Carbon black**, uses
(adhesive film for sealing metal terminal for lithium battery)

IT **Acrylic polymers**, uses
(amino group **grafted**, adhesion promotor; adhesive film for sealing metal terminal for lithium battery)

IT 2422-91-5, Triphenylmethane-4,4',4''-triisocyanate 4151-51-3,
Tris(p-isocyanatophenyl)thiophosphate 7723-14-0D, Phosphorus,
compds. 9002-98-6 9016-87-9, Polymethylenepolyphenylpolyisocya
te 16065-83-1D, Chromium (III), compds., uses 25215-75-2,
Polycarbodiimide 27598-85-2, Aminophenol
(adhesion promotor; adhesive film for sealing metal terminal for
lithium battery)

L30 ANSWER 4 OF 24 HCA COPYRIGHT 2006 ACS on STN

140:43588 Treated **pigment**, use thereof, and compounds for
pigment treatment. Kano, Masanori; Itoh, Kazunori; Yodo,
Takaaki; Kitaoka, Naoyuki; Shibata, Hideo (Sakata Inx Corp., Japan).
PCT Int. Appl. WO 2004000950 A1 20031231, 61 pp. DESIGNATED
STATES: W: CN, JP, KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR,
GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (Japanese). CODEN: PIXXD2.
APPLICATION: WO 2003-JP8019 20030625. PRIORITY: JP 2002-185172
20020625.

AB A treated **pigment** having satisfactory dispersibility in a dispersion
medium and flowability can be obtained even from a **pigment** having, on
the surface, no functional group reactive with a **carbodiimide** group.
The treated **pigment** is used in a dispersion compn. and also in a
resist compn. which has excellent developing characteristics when
used in forming a pattern, e.g., a **color** filter or black matrix,
therefrom. Also provided is a compd. for **pigment** treatment which is
suitable for producing the treated **pigment**. The treated **pigment** is
obtained by treating a **pigment** with a **carbodiimide** compd. having ≥ 1
side chains (e.g., a **polyester side chain**, **polyether side chain**,
polyacrylic side chain) and ≥ 1 basic nitrogen-contg. groups.

IT 9003-11-6DP, Ethylene oxide-propylene oxide copolymer,
carboxy group-terminated, reaction products with
polycarbodiimide derivs. 9011-14-7DP, Poly(methyl
methacrylate), diol derivs. or carboxyl group-terminated,
graft product with **polycarbodiimides** derivs.
24980-41-4DP, Polycaprolactone, **graft** products
with **polycarbodiimide** derivs. 25248-42-4DP,
Polycaprolactone, **graft** products with
polycarbodiimide derivs.

(compd. for **pigment** treatment; treated **pigment**
for dispersion compn. and resist compn.)

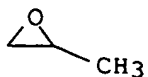
RN 9003-11-6 HCA

CN Oxirane, methyl-, polymer with oxirane (9CI) (CA INDEX NAME)

CM 1

CRN 75-56-9

CMF C3 H6 O



CM 2

CRN 75-21-8

CMF C2 H4 O



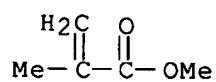
RN 9011-14-7 HCA

CN 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 80-62-6

CMF C5 H8 O2



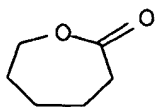
RN 24980-41-4 HCA

CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

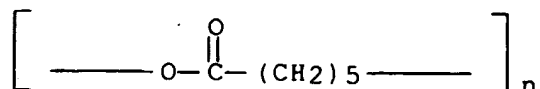
CM 1

CRN 502-44-3

CMF C6 H10 O2



RN 25248-42-4 HCA
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



- IC ICM C09C003-08
ICS C09C003-10
CC 42-6 (Coatings, Inks, and Related Products)
Section cross-reference(s): 74
ST **pigment** dispersibility flowability improvement
polycarbodiimide surface treatment
IT **Carbon black**, uses
(**pigment**; treated **pigment** for dispersion
compn. and resist compn.)
IT **Polyesters**, uses
Polyethers, uses
(**polycarbodiimide**-, **graft**, for
pigment treatment; treated **pigment** for
dispersion compn. and resist compn.)
IT **Polycarbodiimides**
(**polyester**-, **graft**, for **pigment**
treatment; treated **pigment** for dispersion compn. and
resist compn.)
IT **Polycarbodiimides**
(**polyether**-, **graft**, for **pigment**
treatment; treated **pigment** for dispersion compn. and
resist compn.)
IT Optical filters
Photoresists
Pigments, nonbiological
(treated **pigment** for dispersion compn. and resist
compn.)
IT 103-74-2DP, 2-Pyridineethanol, reaction products with
polycarbodiimide graft copolymers 105-59-9DP,
Methyldiethanolamine, reaction products with
polycarbodiimide graft copolymers 108-30-5DP,
Succinic anhydride, reaction products with **polycarbodiimide**
graft copolymers 4098-71-9DP, IPDI, reaction products with
polycarbodiimide derivs. 9003-11-6DP, Ethylene
oxide-propylene oxide copolymer, carboxy group-terminated, reaction
products with **polycarbodiimide** derivs. 9011-14-7DP

, Poly(methyl methacrylate), diol derivs. or carboxyl group-terminated, **graft** product with **polycarbodiimides** derivs. **24980-41-4DP**, Polycaprolactone, **graft** products with **polycarbodiimide** derivs. **25248-42-4DP**, Polycaprolactone, **graft** products with **polycarbodiimide** derivs.

(compd. for **pigment** treatment; treated **pigment** for dispersion compn. and resist compn.)

L30 ANSWER 5 OF 24 HCA COPYRIGHT 2006 ACS on STN

139:262267 Treated **pigments** with good dispersibility, their uses and the treating compounds therefor. Kano, Masanori; Itoh, Kazunori; Kitaoka, Naoyuki; Yodo, Takaaki; Shibata, Hideo (Sakata Inx Corp., Japan). PCT Int. Appl. WO 2003076527 A1 20030918, 57 pp. DESIGNATED STATES: W: CN, JP, KR, US; RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR. (Japanese). CODEN: PIXXD2. APPLICATION: WO 2003-JP2772 20030310. PRIORITY: JP 2002-64416 20020308; JP 2002-74966 20020318; JP 2002-89231 20020327; JP 2002-186838 20020626.

AB Title **pigments** are **carbodiimide**-reactive functional group-contg. org. **pigments** or **carbon black** treated with carbodimides contg. **polyester**, **polyether**, and/or acrylic **side chains** and having carbodimido equiv. (EQ) of 100-50,000. An aq. **carbon black** (with pH 3.1) dispersion was stirred with a glycol ether acetate and a compd. [with EQ 2,053; prepd. from NCO-contg. **polycarbodiimide**, poly(3-methylpentyl adipate) diol, and polycaprolactone] at 90° for 8 h and vacuum dried to form a dispersion showing no ppt. and no viscosity increase after 1 wk at room temp., which was used to prep. a resist with high optical d., resistivity, image development.

IT **9003-63-8DP**, Poly(butyl methacrylate), diol derivs., polymers with NCO-contg. **polycarbodiimides** and polycaprolactones **24980-41-4DP**, polymers with NCO-contg. **polycarbodiimides** and poly(methylpentyl adipate) diols or polyols **25248-42-4DP**, Polycaprolactone, polymers with NCO-contg. **polycarbodiimides** and poly(methylpentyl adipate) diols or polyols **25322-69-4DP**, Polypropylene glycol, COOH-terminated, polymers with NCO-contg. **polycarbodiimides** and poly(methylpentyl adipate) diols **58991-77-8DP**, Adipic acid-3-methyl-1,5-pentanediol copolymer, sru, diol derivs., polymers with NCO-contg. **polycarbodiimides** and polycaprolactones (acrylic, **polyester**, and/or **polyether side chain**-contg. **carbodiimide** -treated functional **pigments** or **carbon black** for dispersion stability)

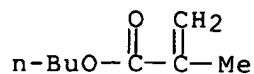
RN **9003-63-8** HCA

CN 2-Propenoic acid, 2-methyl-, butyl ester, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 97-88-1

CMF C8 H14 O2



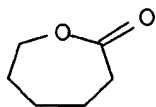
RN 24980-41-4 HCA

CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

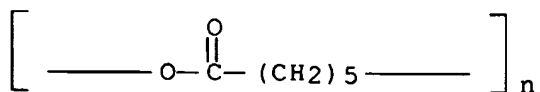
CRN 502-44-3

CMF C6 H10 O2



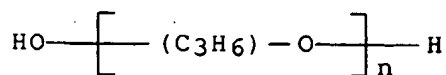
RN 25248-42-4 HCA

CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)

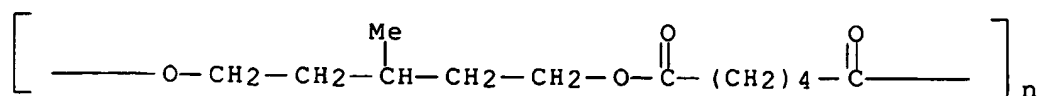


RN 25322-69-4 HCA

CN Poly[oxy(methyl-1,2-ethanediyl)], α -hydro- ω -hydroxy- (9CI) (CA INDEX NAME)



RN 58991-77-8 HCA
 CN Poly[oxy(3-methyl-1,5-pentanediyloxy(1,6-dioxo-1,6-hexanediyloxy(9CI) (CA INDEX NAME)

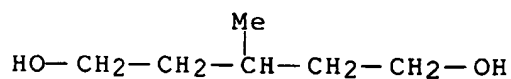


IT 39751-34-3DP, Adipic acid-3-methyl-1,5-pentanediol
 copolymer, diol derivs., polymers with NCO-contg.
polycarbodiimides and polycaprolactones
 (assumed monomers; acrylic, **polyester**, and/or
polyether side chain-contg.
carbodiimide-treated functional **pigments** or
carbon black for dispersion stability)

RN 39751-34-3 HCA
 CN Hexanedioic acid, polymer with 3-methyl-1,5-pentanediol (9CI) (CA INDEX NAME)

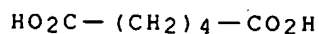
CM 1

CRN 4457-71-0
 CMF C6 H14 O2



CM 2

CRN 124-04-9
 CMF C6 H10 O4



IT 196402-77-4, Benzyl methacrylate-dipentaerythritol
hexaacrylate-methacrylic acid copolymer

(resist binder; acrylic, **polyester**, and/or
polyether side chain-contg.

carbodiimide-treated functional **pigments** or
carbon black for dispersion stability)

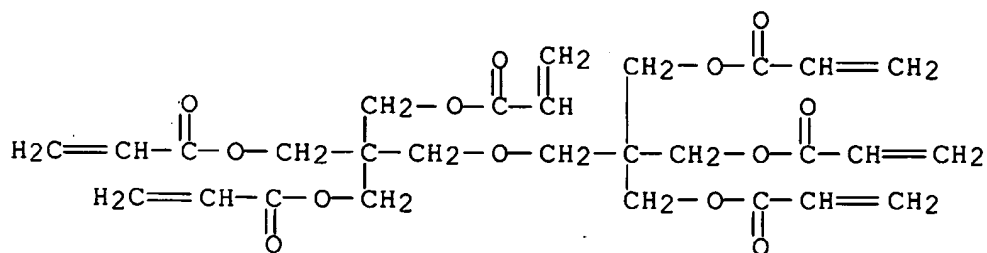
RN 196402-77-4 HCA

CN 2-Propenoic acid, 2-methyl-, polymer with 2-[[3-[(1-oxo-2-
propenyl)oxy]-2,2-bis[[[(1-oxo-2-propenyl)oxy]methyl]propoxy]methyl]-
2-[[[(1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl di-2-propenoate
and phenylmethyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

CM 1

CRN 29570-58-9

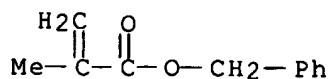
CMF C28 H34 O13



CM 2

CRN 2495-37-6

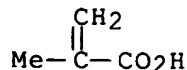
CMF C11 H12 O2



CM 3

CRN 79-41-4

CMF C4 H6 O2



- IC ICM C09C003-10
ICS C09C001-48; G03F007-004; G02B005-20; G02B005-00
- CC 42-6 (Coatings, Inks, and Related Products)
Section cross-reference(s): 74
- ST **polyester carbodiimide** treated functional
pigment dispersion stability; **polyether**
carbodiimide treated functional **pigment** dispersion
stability; acrylic **carbodiimide** treated functional
pigment dispersion stability; **carbon black**
polyester carbodiimide treatment dispersion
stability; image development resist **polyester**
carbodiimide treated functional **pigment**
- IT Polyoxyalkylenes, uses
(COOH-terminated, polymers with NCO-contg.
polycarbodiimides and poly(methylpentyl adipate) diols;
acrylic, **polyester**, and/or **polyether**
side chain-contg. **carbodiimide**
-treated functional **pigments** or **carbon**
black for dispersion stability)
- IT **Pigments**, nonbiological
Resists
(acrylic, **polyester**, and/or **polyether**
side chain-contg. **carbodiimide**
-treated functional **pigments** or **carbon**
black for dispersion stability)
- IT **Carbon black**, uses
(acrylic, **polyester**, and/or **polyether**
side chain-contg. **carbodiimide**
-treated functional **pigments** or **carbon**
black for dispersion stability)
- IT Polyoxyalkylenes, uses
(acrylic-**polycarbodiimide**-; acrylic, **polyester**
, and/or **polyether side chain**
-contg. **carbodiimide**-treated functional
pigments or **carbon black** for
dispersion stability)
- IT **Polycarbodiimides**
(acrylic-polyoxyalkylene-; acrylic, **polyester**, and/or
polyether side chain-contg.
carbodiimide-treated functional **pigments** or
carbon black for dispersion stability)

- IT Polyurethanes, uses
(**polycarbodiimide-polyester-**; acrylic,
polyester, and/or **polyether side**
chain-contg. carbodiimide-treated functional
pigments or carbon black for
dispersion stability)
- IT Polyurethanes, uses
(**polycarbodiimide-polyester-polyether**
-; acrylic, **polyester**, and/or **polyether**
side chain-contg. carbodiimide
-treated functional pigments or carbon
black for dispersion stability)
- IT Polyethers, uses
(**polycarbodiimide-polyester-polyurethane-**;
acrylic, **polyester**, and/or **polyether**
side chain-contg. carbodiimide
-treated functional pigments or carbon
black for dispersion stability)
- IT Polyesters, uses
(**polycarbodiimide-polyether-polyurethane-**;
acrylic, **polyester**, and/or **polyether**
side chain-contg. carbodiimide
-treated functional pigments or carbon
black for dispersion stability)
- IT Acrylic polymers, uses
(**polycarbodiimide-polyoxyalkylene-**; acrylic,
polyester, and/or **polyether side**
chain-contg. carbodiimide-treated functional
pigments or carbon black for
dispersion stability)
- IT Polyesters, uses
(**polycarbodiimide-polyurethane-**; acrylic,
polyester, and/or **polyether side**
chain-contg. carbodiimide-treated functional
pigments or carbon black for
dispersion stability)
- IT Polycarbodiimides
(**polyester-polyether-polyurethane-**; acrylic,
polyester, and/or **polyether side**
chain-contg. carbodiimide-treated functional
pigments or carbon black for
dispersion stability)
- IT Polycarbodiimides
(**polyester-polyurethane-**; acrylic, **polyester**,
and/or **polyether side chain-contg.**
carbodiimide-treated functional pigments or
carbon black for dispersion stability)

- IT Polyoxyalkylenes, uses
(polymers with NCO-contg. **polycarbodiimides** and polycaprolactones; acrylic, **polyester**, and/or **polyether side chain**-contg. **carbodiimide**-treated functional **pigments** or **carbon black** for dispersion stability)
- IT 79-10-7DP, Acrylic acid, COOH-contg. polymers, polymers with NCO-contg. **polycarbodiimides** and poly(methylpentyl adipate) diols 79-41-4DP, Methacrylic acid, COOH-contg. polymers, polymers with NCO-contg. **polycarbodiimides** and poly(methylpentyl adipate) diols 107-21-1DP, Ethylene glycol, polymers with NCO-contg. **polycarbodiimides** and poly(methylpentyl adipate) diols and polycaprolactones **9003-63-8DP**, Poly(butyl methacrylate), diol derivs., polymers with NCO-contg. **polycarbodiimides** and polycaprolactones **24980-41-4DP**, polymers with NCO-contg. **polycarbodiimides** and poly(methylpentyl adipate) diols or polyols **25248-42-4DP**, Polycaprolactone, polymers with NCO-contg. **polycarbodiimides** and poly(methylpentyl adipate) diols or polyols **25322-69-4DP**, Polypropylene glycol, COOH-terminated, polymers with NCO-contg. **polycarbodiimides** and poly(methylpentyl adipate) diols **25322-69-4DP**, Polypropylene glycol, polymers with NCO-contg. **polycarbodiimides** and polycaprolactones **58991-77-8DP**, Adipic acid-3-methyl-1,5-pentanediol copolymer, sru, diol derivs., polymers with NCO-contg. **polycarbodiimides** and polycaprolactones
(acrylic, **polyester**, and/or **polyether side chain**-contg. **carbodiimide**-treated functional **pigments** or **carbon black** for dispersion stability)
- IT **39751-34-3DP**, Adipic acid-3-methyl-1,5-pentanediol copolymer, diol derivs., polymers with NCO-contg. **polycarbodiimides** and polycaprolactones
(assumed monomers; acrylic, **polyester**, and/or **polyether side chain**-contg. **carbodiimide**-treated functional **pigments** or **carbon black** for dispersion stability)
- IT **196402-77-4**, Benzyl methacrylate-dipentaerythritol hexaacrylate-methacrylic acid copolymer
(resist binder; acrylic, **polyester**, and/or **polyether side chain**-contg. **carbodiimide**-treated functional **pigments** or **carbon black** for dispersion stability)

beads with fluorescent dendrimers: creation of localized microdomains. Cardona, Claudia M.; Jannach, Stephan H.; Huang, Hao; Itojima, Yukiko; Leblanc, Roger M.; Gawley, Robert E.; Baker, Gary A.; Brauns, Eric B. (Department of Chemistry, Freshwater Biomedical Sciences Center, University of Miami, Coral Gables, FL, 33124-0431, USA). Helvetica Chimica Acta, 85(10), 3532-3558 (English) 2002. CODEN: HCACAV. ISSN: 0018-019X. Publisher: Verlag Helvetica Chimica Acta.

- AB Second and third generation Newkome-type trifurcated dendrimers, contg. either a coumarin or dansyl fluorescent probe at the dendrimer core, have been synthesized and attached to ArgoGel solid-phase-synthesis beads. Subsequent reaction with rhodamine **dye** shows that the **dye** can penetrate throughout the beads to acylate the remaining sites. Thus, it is possible to achieve a spatially resolved microdomain for library formation at the core of the dendrimer, primarily on the bead's periphery, and a second microdomain suitable for derivatization by other reagents such as encoding tags and fluorescent sensors.
- CC 35-8 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 38
- ST derivatization solid phase bead fluorescent dendrimer; coumarin contg dendrimer solid phase bead; dansyl contg dendrimer solid phase bead; oxirane styrene **graft** copolymer bead fluorescent dendrimer
- IT Fluorescence
(of coumarin- and dansyl-contg. fluorescent **dye** Newkome-type trifurcated dendrimer-attached ArgoGel beads)
- IT **Polyethers**, preparation
(polyamide-, dendrimers; prepn. of coumarin- and dansyl-contg. fluorescent **dye** Newkome-type trifurcated dendrimer-attached ArgoGel beads)
- IT Dendritic polymers
(polyamide-**polyethers**; prepn. of coumarin- and dansyl-contg. fluorescent **dye** Newkome-type trifurcated dendrimer-attached ArgoGel beads)
- IT Polyamides, preparation
(**polyether**-, dendrimers; prepn. of coumarin- and dansyl-contg. fluorescent **dye** Newkome-type trifurcated dendrimer-attached ArgoGel beads)
- IT Polyoxyalkylenes, preparation
(polystyrene-, **graft**, reaction products with coumarin- or dansyl-contg. dendrimers; prepn. and characterization of)
- IT 493006-92-1P
(fluorescent **dyes**; prepn. and characterization of)
- IT 493007-16-2P
(fluorescent **dyes**; prepn. and characterization of)
- IT 81-88-9DP, Rhodamine B, reaction products with coumarin- and

dansyl-contg. fluorescent **dye**-attached ArgoGel beads
117381-20-1DP, ArgoGel, amino-contg., reaction products with
coumarin- or dansyl-contg. fluorescent **dye** Newkome-type
trifurcated dendrimers 493006-92-1DP, reaction products with
ArgoGel 493007-16-2DP, reaction products with ArgoGel
493007-24-2P 493007-30-0P 493007-33-3P
(prepn. and characterization of)

IT 200133-18-2P
(prepn. and reaction with coumarin-contg. fluorescent **dye**
and with diisopropyl **carbodiimide**)
IT 693-13-0, Diisopropyl **carbodiimide**
(reaction with nonacid deriv.)

L30 ANSWER 7 OF 24 HCA COPYRIGHT 2006 ACS on STN

137:301741 Development of thermally stable novel EO-polymers. Ushiwata,
Takami; Okamoto, Etsuya; Kaino, Toshikuni (Institute of Material
Research for Advanced Materials, Tohoku University, Sendai,
980-8577, Japan). Molecular Crystals and Liquid Crystals Science
and Technology, Section A: Molecular Crystals and Liquid Crystals,
374, 303-314 (English) **2002**. CODEN: MCLCE9. ISSN:
1058-725X. Publisher: Taylor & Francis Ltd..

AB The authors synthesized and evaluated NLO properties of azo **dye**
attached novel NLO polymers with high thermal stability. The NLO
polymers contg. an azo **dye**, DR-1, in their **side-chain** were
synthesized using a new approach. **Polyacrylic acid** or **polymethacrylic**
acid reacted with DR-1 via the intermediate reaction of the acid and
N,N'- **dicyclohexylcarbodiimide**. The DR-1 contents of the products
were 39 mol% and 29 mol%, for derivs. from **polyacrylic acid** and
polymethacrylic acid, resp. Glass transition temps. of 150° to 170°
were obtained for Disperse red 1 **dye** attached **polymethacrylic acid**.
The poled film exhibited 2nd order NLO susceptibilities ($\chi(2)_{33}$) of
48 pm/V to 53 pm/V at 1.3 μm fundamental wave. Due to the high glass
transition temps. of the polymers, long-term stability of the optical
nonlinearity at 100° was obsd. for 200 h or more. However residual
carboxyl groups caused absorbance decrease mainly by hydrolysis of
the ester bonds of the polymers. These polymers can be further
improved to have more thermally stable structure by heat treatment.
Through the approach, methacryl imide structure was formed and the
polymer has high Tg of 165°. This imidized polymer exhibited $\chi(2)_{33}$
of 45 pm/V at a wavelength of 1.3 μm and maintained .apprx.90% of the
initial value after 230 h or more at 100°.

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related
Properties)

ST thermal stability nonlinear optical polymer disperse red azo
dye; imidization UV visible absorption

IT Azo **dyes**
Imidation

Nonlinear optical susceptibility
Thermal stability
UV and visible spectra
(development of thermally stable novel nonlinear optical
polymers)

L30 ANSWER 8 OF 24 HCA COPYRIGHT 2006 ACS on STN

137:59847 Active and biocompatible platforms prepared by polymerization
of surface coating films. Huang, Mingxian; Wang, Xiaobo; Wu, Lei;
Yang, Weiping; Cheng, Jing (Aviva Biosciences, USA). PCT Int. Appl.
WO 2002052045 A1 **20020704**, 82 pp. DESIGNATED STATES: W:

AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO,
CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR,
HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU,
LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD,
SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW,
AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH,
CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR,
NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2.

APPLICATION: WO 2001-US48919 20011213. PRIORITY: US 2000-258281P
20001226.

AB The present invention recognizes that polymerizable coating films can
be utilized to make chips such as biochips that include channel
structures. These chips can optionally include one or more addnl.
structures such as particles, biol. groups or chem. groups. Such
biochips having channel structures have a wide variety of useful
applications, particularly in the field of lab. on a chip and other
applications where microfluidics are of importance. One aspect of
the present invention is a platform that includes: a surface, a
coating film and a channel structure. Preferably, the coating film
defines in part said channel structure and more preferably the
platform comprises a microchip. Diagrams describing the app.
assembly and operation are given.

IT **7440-44-0, Carbon, uses 9011-14-7, PMMA**

(active and biocompatible platforms prepd. by polymn.
of surface coating films)

RN 7440-44-0 HCA

CN Carbon (7CI, 8CI, 9CI) (CA INDEX NAME)

C

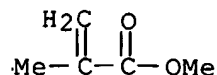
RN 9011-14-7 HCA

CN 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer (9CI) (CA
INDEX NAME)

CM 1

CRN 80-62-6

CMF C5 H8 O2



IC ICM C12Q001-68

CC 9-1 (Biochemical Methods)

Section cross-reference(s): 36

IT **Acrylic polymers**, uses

Fluoropolymers, uses

Glass, uses

Metals, uses

Oxides (inorganic), uses

Plastics, uses

Polyimides, uses

Polyoxyalkylenes, uses

Polysaccharides, uses

Polysiloxanes, uses

Polyurethanes, uses

(active and biocompatible platforms prepd. by polymn. of surface coating films)

IT Ketones, properties

(polymers of **pendant $\alpha.\beta$ unsatd.**; active and biocompatible platforms prepd. by polymn. of surface coating films)

IT 7440-21-3, Polysilicon, uses **7440-44-0, Carbon**,

uses 9002-84-0, PTFE 9002-89-5, Polyvinyl alcohol 9003-05-8

9003-39-8, Polyvinylpyrrolidone 9003-53-6, Polystyrene

9011-14-7, PMMA 12033-89-5, Silicon nitride, uses

25014-12-4, Polymethacrylamide 25322-68-3, Polyethylene glycol

(**active** and biocompatible platforms prepd. by polymn. of surface coating films)

IT 9003-06-9, Poly(acrylamide/acrylic acid) 25952-53-8,

1-Ethyl-3-(3-dimethylaminopropyl)**carbodiimide**

hydrochloride 72607-53-5, N-(3-Aminopropyl)methacrylamide

hydrochloride 82436-77-9, Bis(sulfosuccinimidyl)suberate

(active and biocompatible platforms prepd. by polymn. of surface coating films)

L30 ANSWER 9 OF 24 HCA COPYRIGHT 2006 ACS on STN

136:63287 A novel contamination sensor in solution: the response of the electric resistance of a composite based on crystalline polymer-**grafted carbon black**. Tsubokawa, N.;

Tsuchida, M.; Chen, J.; Nakazawa, Y. (Department of Material Science and Technology, Faculty of Engineering, Niigata University, Niigata, 950-2181, Japan). Sensors and Actuators, B: Chemical, B79(2-3), 92-97 (English) 2001. CODEN: SABCEB. ISSN: 0925-4005.

Publisher: Elsevier Science B.V..

AB The response of the elec. resistance of the composite prep. from cryst. polymer-**grafted carbon black** as a function of the contamination in soln. was studied. The elec. resistance of the composite prep. from poly(ϵ -caprolactone) (PCL)-**grafted carbon black** drastically increased in hexane, contg. chloroform, trichloroethane, and ethanol and returned immediately to the initial resistance when it was transferred into pure hexane. The response of the elec. resistance was highly reproducible. The logarithm of elec. resistance was linearly proportional to the concn. of chloroform in hexane. Also, the elec. resistance of the composite prep. from cryst. poly(ethylene glycol) (PEG)-**grafted** and poly(ethylene adipate) (PEA)-**grafted carbon black** also drastically increased in hexane contg. alc., which is a good solvent of the **grafted** chain (PEG and PEA). This is due to a widening of the gaps between the **carbon black** particles based on the absorption of solvent for these cryst. polymers.

IT 24980-41-4D, Poly(ϵ -caprolactone), **carbon black grafted** with 25248-42-4D, Poly[oxy(1-oxo-1,6-hexanediyl)], **carbon black grafted** with

(response of elec. resistance of composite based on cryst. polymer-**grafted carbon black** for novel contamination sensor in soln.)

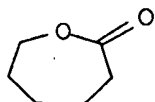
RN 24980-41-4 HCA

CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

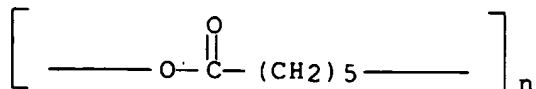
CM 1

CRN 502-44-3

CMF C6 H10 O2



RN 25248-42-4 HCA
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



- CC 80-2 (Organic Analytical Chemistry)
Section cross-reference(s): 76
- ST contamination sensor elec resistance cryst polymer **grafted carbon black**
- IT Polyoxyalkylenes, analysis
(**carbon black grafted** with;
response of elec. resistance of composite based on cryst.
polymer-**grafted carbon black** for
novel contamination sensor in soln.)
- IT **Carbon black**, analysis
(cryst. polymer-**grafted**; response of elec. resistance
of composite based on cryst. polymer-**grafted carbon black** for novel contamination sensor in
soln.)
- IT Electric resistance
Sensors
(response of elec. resistance of composite based on cryst.
polymer-**grafted carbon black** for
novel contamination sensor in soln.)
- IT 64-17-5, Ethanol, analysis 67-66-3, Chloroform, analysis
25323-89-1, Trichloroethane
(analyte; response of elec. resistance of composite based on
cryst. polymer-**grafted carbon black**
for novel contamination sensor in soln.)
- IT 538-75-0, N,N'-**Dicyclohexylcarbodiimide**
(condensing agent in prepn. of cryst. polymer-**grafted carbon black**)
- IT 24937-05-1D, Poly(ethylene adipate), **carbon black grafted** with 24938-37-2D, Poly(ethylene adipate), **carbon black grafted** with
24980-41-4D, Poly(ϵ -caprolactone), **carbon black grafted** with 25248-42-4D,
Poly[oxy(1-oxo-1,6-hexanediyl)], **carbon black grafted** with 25322-68-3D, Poly(ethylene glycol),
carbon black grafted with
(response of elec. resistance of composite based on cryst.

- polymer-grafted carbon black for novel contamination sensor in soln.)
- IT 110-54-3, Hexane, analysis
(sample solvent; response of elec. resistance of composite based on cryst. polymer-grafted carbon black for novel contamination sensor in soln.)
- L30 ANSWER 10 OF 24 HCA COPYRIGHT 2006 ACS on STN
135:212334 Postgrafting of hydrophobic polymers to hydrophilic polymer-grafted carbon black and their dispersibility. Tsubokawa, Norio; Ohmata, Kimiyo; Akai, Katsunori; Nishizawa, Nobuyoshi; Fujiki, Kazuhiro (Department of Materials Science and Technology, Faculty of Engineering, Niigata University, Ikagashi, Niigata, 950-2181, Japan). Shikizai Kyokaishi, 74(1), 2-7 (Japanese) 2001. CODEN: SKYOAQ. ISSN: 0010-180X. Publisher: Shikizai Kyokai.
- AB Carbon black was grafted with poly(ethyleneimine) (I) and glycidyl methacrylate-Me methacrylate copolymer (II). Carbon black grafted with I gave a stable colloidal dispersion in water, but pptd. in toluene. Carbon black grafted with I and II lost dispersibility in water, but uniformly and stably dispersed in toluene. When carbon black grafted with I and II was dispersed in a water-toluene binary mixt., the water droplets (.apprx.1-3-mm diam.) were stabilized and gathered in the interfacial layer. This result indicated that the water droplets were surrounded by the particles in the same manner as surfactant mols.
- CC 42-6 (Coatings, Inks, and Related Products)
- ST carbon black ethyleneimine glycidyl methacrylate grafting; hydrophilicity hydrophobicity grafted carbon black
- IT Carbon black, properties
(FW 200, reaction products with glycidyl methacrylate-Me methacrylate copolymer and poly(ethyleneimine); postgrafting of hydrophobic polymers to hydrophilic polymer-grafted carbon black and dispersibility)
- IT Polymerization
(graft; postgrafting of hydrophobic polymers to hydrophilic polymer-grafted carbon black and dispersibility)
- IT Dispersion (of materials)
Hydrophilicity
Hydrophobicity
Interface
(postgrafting of hydrophobic polymers to hydrophilic polymer-grafted carbon black and dispersibility)

IT 9002-98-6DP, reaction products with **carbon black** and glycidyl methacrylate-Me **methacrylate copolymer** 26141-88-8DP, Glycidyl methacrylatemethyl **methacrylate copolymer**, reaction products with **carbon black** and poly(ethyleneimine)
(postgrafting of hydrophobic polymers to hydrophilic polymer-**grafted carbon black** and dispersibility)

IT 538-75-0, N,N'-**Dicyclohexylcarbodiimide**
(postgrafting of hydrophobic polymers to hydrophilic polymer-**grafted carbon black** and dispersibility)

L30 ANSWER 11 OF 24 HCA COPYRIGHT 2006 ACS on STN

134:117224 Thermally-curable water-thinned coating compositions and multilayered coating films therefrom useful for metal and plastic protection. Masuda, Kazuaki; Osugi, Koji; Kuwashima, Teruaki; Harakawa, Takeshi (Nippon Paint Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2001011151 A2 **20010116**, 16 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2000-49321 20000225. PRIORITY: JP 1999-124008 19990430.

AB The compns. having good water resistance and storage stability comprise a carboxy-contg. water-based polymer (A) and a hydrophilically modified **polycarbodiimide** (B) which has alternating units of **carbodiimides** and alternating units of polyols linking to the previous units by urethane bondings and is terminated with hydrophilic units on 2 ends by urethane bondings. Thus, heating 700 parts 4,4-dicyclohexylmethane diisocyanate in the presence of 14 parts 3-methyl-1-phenyl-2-phospholene-1-oxide at 180° for 16 h, mixing 226.8 parts the resulting **polycarbodiimide** with 200 parts polypropylene glycol of Mn 2000 and heating at 90° for 3 h in the presence of 0.16 parts dibutyltin dilaurate gave an isocyanate-terminated copolymer which was modified with polyoxyethylene mono(2-ethylhexyl) ether to give a B-type copolymer. Mixing 80 parts a copolymer of Et acrylate 250, 2-hydroxyethyl methacrylate 150, 2-hydroxyethyl acrylate 223, methacrylic acid 77 and styrene 300 parts with 20 parts B and 10 parts **pigment** paste gave a compn. which could be thinned with water.

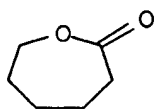
IT **24980-41-4DP**, Polycaprolactone, diols, block copolymers with **polycarbodiimide**, modified with hydrophilic agents
25248-42-4DP, Polycaprolactone, diols, block copolymers with **polycarbodiimide**, modified with hydrophilic agents
(thermally-curable water-thinned coating compns. and multilayered coating films therefrom useful for metal and plastic protection)

RN 24980-41-4 HCA

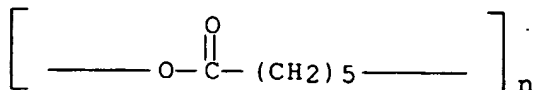
CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 502-44-3
CMF C6 H10 O2



RN 25248-42-4 HCA
CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



IC ICM C08G018-79
ICS C08G018-83; C09D175-12
CC 42-10 (Coatings, Inks, and Related Products)
Section cross-reference(s): 38, 55
ST polyalkylene glycol ether hydrophilic modifier
polycarbodiimide coating; water thinned hydrophilic modified
polycarbodiimide multiblock copolymer coating; thermosetting
hydrophilic modified **polycarbodiimide** multiblock copolymer
coating; dicyclohexylmethane diisocyanate **polycarbodiimide**
polyoxyethylene multiblock copolymer coating; polypropylene glycol
carbodiimides multiblock copolymer coating; carboxy contg
polymer **polycarbodiimide** alternating copolymer coating;
acrylate polymer polycarbodiimide
alternating copolymer coating; multilayered coating
polycarbodiimide alternating copolymer
IT Phenoxy **resins**
(**acrylic**, coating vehicle; thermally-curable
water-thinned coating compns. and multilayered coating films
therefrom useful for metal and plastic protection)
IT **Polyesters**, uses
Polyoxyalkylenes, uses
(**polycarbodiimide**-, block, hydrophilic component;
thermally-curable water-thinned coating compns. and multilayered
coating films therefrom useful for metal and plastic protection)
IT Polyoxyalkylenes, uses

- (**polyester-**, block, coating vehicle; thermally-curable water-thinned coating compns. and multilayered coating films therefrom useful for metal and plastic protection)
- IT **Polycarbodiimides**
 (**polyester-**, block, hydrophilic component; thermally-curable water-thinned coating compns. and multilayered coating films therefrom useful for metal and plastic protection)
- IT **Polyesters, uses**
 (polyoxyalkylene-, block, coating vehicle; thermally-curable water-thinned coating compns. and multilayered coating films therefrom useful for metal and plastic protection)
- IT **Polycarbodiimides**
 (polyoxyalkylene-, block, hydrophilic component; thermally-curable water-thinned coating compns. and multilayered coating films therefrom useful for metal and plastic protection)
- IT 707-61-9, 3-Methyl-1-phenyl-2-phospholene-1-oxide
 (**carbodiimidization** catalyst; thermally-curable water-thinned coating compns. and multilayered coating films therefrom useful for metal and plastic protection)
- IT 77-99-6DP, Trimethylolpropane, alkyd resins 79-41-4DP, Methacrylic acid, polymers with acrylic and vinyl monomers and **polyether**-polysiloxanes 100-42-5DP, Styrene, polymers with acrylic and vinyl monomers and **polyether**-polysiloxanes 121-91-5DP, Isophthalic acid, alkyd resins 124-04-9DP, Adipic acid, alkyd resins 126-30-7DP, Neopentyl glycol, alkyd resins 140-88-5DP, Ethyl **acrylate**, **polymers** with acrylic and vinyl monomers and **polyether**-polysiloxanes 502-44-3DP, ε-Caprolactone, alkyd resins 552-30-7DP, Trimellitic anhydride, alkyd resins 818-61-1DP, 2-Hydroxyethyl **acrylate**, **polymers** with acrylic and vinyl monomers and **polyether**-polysiloxanes 868-77-9DP, 2-Hydroxyethyl **methacrylate**, **polymers** with acrylic and vinyl monomers and **polyether**-polysiloxanes 26915-97-9P 135991-20-7DP, Epol, alkyd resins 321181-75-3P, Ethyl acrylate-2-hydroxyethyl acrylate-2-hydroxyethyl methacrylate-methacrylic acid-styrene copolymer 321181-76-4P, Acrylamide-ethyl acrylate-2-hydroxyethyl methacrylate-methacrylic acid-methyl **methacrylate copolymer** 321181-77-5P, Carbonic acid-1,6-hexanediol-dimethylolpropionic acid-hydrazine-isophorone diisocyanate block copolymer 321181-78-6P, Epikote EP-1256;ethyl acrylate;methacrylic acid-styrene **graft** copolymer
 (coating vehicle; thermally-curable water-thinned coating compns. and multilayered coating films therefrom useful for metal and plastic protection)
- IT 13463-67-7, Tipaque R-820, uses
 (**pigment**; thermally-curable water-thinned coating compns. and multilayered coating films therefrom useful for metal

and plastic protection)

IT 53880-05-0DP, Isophorone diisocyanate polymer, reaction product polycarbonate diols and polyoxyethylene monolauryl ether 62948-28-1DP, 4,4'-Dicyclohexylmethane diisocyanate homopolymer, block copolymers with polycaprolactone diols, ethers with hydrophilic agents
(**polycarbodiimide**-contg.; thermally-curable water-thinned coating compns. and multilayered coating films therefrom useful for metal and plastic protection)

IT 80-04-6DP, Hydrogenated bisphenol A, alkyd resins 9002-92-0DP, Polyethylene glycol monolauryl ether, reaction product with polycarbonate-**polycarbodiimides** 24980-41-4DP, Polycaprolactone, diols, block copolymers with **polycarbodiimide**, modified with hydrophilic agents 25248-42-4DP, Polycaprolactone, diols, block copolymers with **polycarbodiimide**, modified with hydrophilic agents 111460-07-2DP, Sodium hydroxypropanesulfonate, reaction products with polycaprolactone-**polycarbodiimides**
(thermally-curable water-thinned coating compns. and multilayered coating films therefrom useful for metal and plastic protection)

L30 ANSWER 12 OF 24 HCA COPYRIGHT 2006 ACS on STN

133:267608 Resin composites with controlled phase structure of resins in the exfoliated surfaces of the fillers. Hasegawa, Naoki; Usuki, Arimitsu (Kabushiki Kaisha Toyota Chuo Kenkyusho, Japan). Ger. Offen. DE 10014254 A1 **20000928**, 18 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2000-10014254 20000323. PRIORITY: JP 1999-78187 19990323.

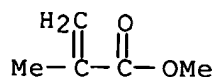
AB The composites comprise particles with surface area <50 m²/g and ≥2 polymers or a copolymer ≥2 types of segments. The polymers or the copolymer form/forms a phase structure with a unit thickness 1-1000 Nm and are/is on the surface of the exfoliated particles. It is preferential that the particles have a needle-shaped, plate- and(or) sheet-type, spherical, or cylindrical form and the copolymer is a block copolymer or a **graft** copolymer with ≥2 types of segments. A typical composite is formed from 400 g Tuftec H1013 and 38.4 g octadecylamine- montmorillonite adducts.

IT **7440-44-0**, Carbon, uses
(particulates; resin composites with controlled phase structure of resins in exfoliated surfaces of fillers)

RN 7440-44-0 HCA

CN Carbon (7CI, 8CI, 9CI) (CA INDEX NAME)

IT 9011-14-7, PMMA
 (resin composites with controlled phase structure of resins in
 exfoliated surfaces of fillers)
 RN 9011-14-7 HCA
 CN 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer (9CI) (CA
 INDEX NAME)
 CM 1
 CRN 80-62-6
 CMF C5 H8 O2



IC ICM C08J003-20
 ICS C08J005-10; C09D005-00; B32B005-04; C08L101-12
 CC 37-6 (Plastics Manufacture and Processing)
 ST nanocomposite **graft** copolymer controlled phase;
 octadecylamine montmorillonite adduct nanocomposite controlled
 polymer phase; polymer blend controlled phase nanocomposite
 IT **Polyesters**, uses
 (arom.; resin composites with controlled phase structure of
 resins in exfoliated surfaces of fillers)
 IT Urethane rubber, uses
 (**polyester**-, block, Elastollan C 95A; resin composites
 with controlled phase structure of resins in exfoliated surfaces
 of fillers)
 IT Polyimides, uses
 Polyimides, uses
 (**polyether**-; resin composites with controlled phase
 structure of resins in exfoliated surfaces of fillers)
 IT Polyamides, uses
 Polyamides, uses
Polyethers, uses
Polyethers, uses
 (polyimide-; resin composites with controlled phase structure of
 resins in exfoliated surfaces of fillers)
 IT **Acrylic polymers**, uses
 Butyl rubber, uses
 EPDM rubber
 Fluoropolymers, uses
 Polyamides, uses

Polybenzimidazoles

Polycarbodiimides

Polycarbonates, uses

Polyesters, uses

Polyethers, uses

Polyimides, uses

Polyketones

Polyoxymethylenes, uses

Polysilanes

Polysiloxanes, uses

Polysulfones, uses

Polythiophenylenes

Polyureas

Polyurethanes, uses

Styrene-butadiene rubber, uses

(resin composites with controlled phase structure of resins in exfoliated surfaces of fillers)

IT **7440-44-0**, Carbon, uses

(particulates; resin composites with controlled phase structure of resins in exfoliated surfaces of fillers)

IT 9002-84-0, PTFE 9002-88-4, Polyethylene 9003-17-2, Polybutadiene 9003-17-2D, Polybutadiene, hydrogenated 9003-29-6, Polybutene 9003-31-0, Polyisoprene 9003-31-0D, Polyisoprene, hydrogenated 9003-55-8D, Butadiene-styrene copolymer, hydrogenated 9010-79-1, Ethylene-propylene copolymer **9011-14-7**, PMMA 9019-29-8, Butene-ethylene copolymer 9078-70-0, Polypentene 25212-74-2, Polythiophenylene

(resin composites with controlled phase structure of resins in exfoliated surfaces of fillers)

L30 ANSWER 13 OF 24 HCA COPYRIGHT 2006 ACS on STN

132:294891 Resin compositions for use in finishing of cellulosic fabrics and method for their use. Mizushima, Makoto; Kaneida, Kenta (Nippon Shokubai Kagaku Kogyo Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000119968 A2 **20000425**, 11 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1998-290393 19981013.

AB The resin compns. useful as binders for fabric printing inks, impregnation, coating, etc., comprise, as main compns., (A) polymers bearing COOH groups, and (B) polyfunctional oxazoline compds. or/and polyfunctional **carbodiimide** compds. as crosslinking agents, and (C) compds. bearing groups (X) which are reactive to OH groups and can form COOH groups by the reaction with OH groups, or/and compds. bearing the X groups and COOH groups for improving the adhesion of binders to fabric surfaces and retaining good printing **color** washfastness. Thus, prep. a reducer from Bissurf 1400 (thickening emulsifier) 3, water 34 and mineral terpene 63 parts, mixing 75 parts the reducer with Ryudye W Blue KW (water-based **pigment**) 20, Nikasol A

01 (carboxy group-contg. **acrylic polymer**; 45.2% aq. soln.) 20, a Me methacrylate-2-isopropenyl-2-oxazoline-Light Acrylate 130A (methoxypolyethylene glycol **acrylate**) **copolymer** (40.4% aq. soln.) 2 and SMA 1000P (maleic anhydride-styrene copolymer) 2 parts gave an ink which was printed on a cotton fabric to give prints with good friction resistance and washfastness.

IC ICM D06M015-263

ICS C08K005-29; C08K005-353; C08L035-00; C08L039-04; C08L079-00; C08L101-08; D06P001-46; D06P003-60

CC 38-3 (Plastics Fabrication and Uses)

Section cross-reference(s): 40

ST textile printing ink binder **acrylic resin**

oxazoline crosslinker; washfastness cotton fabric printing ink

binder; wear resistance cotton fabric printing ink binder;

cellulosic fabric finishing binder **acrylic resin**

crosslinker oxazoline compd

IT 25586-20-3P, Acrylic acid-butyl acrylate-styrene copolymer

25686-45-7P, Acrylic acid-acrylonitrile-butyl **acrylate**

copolymer 264906-85-6P, Nikasol A 01

(base resins; resin compns. for use in finishing of cellulosic fabrics and method for use)

IT 264266-13-9P, 2-Isopropenyl-2-oxazoline-Light Acrylate

130A-methacrylic acid **graft** copolymer 264266-14-0P,

Ethylene oxide-2-isopropenyl-2-oxazoline-methacrylic acid

graft copolymer 264266-15-1P, Acrylic acid-2-isopropenyl-2-oxazoline-styrene copolymer

(crosslinker; resin compns. for use in finishing of cellulosic fabrics and method for use)

L30 ANSWER 14 OF 24 HCA COPYRIGHT 2006 ACS on STN

132:124272 Aqueous soil-repellent silicone polymer materials and their coating films. Tamura, Tsuruki; Tadaoka, Eisuke; Kawata, Hiroyuki (Hitachi Chemical Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 2000034422 A2 **20000202**, 6 pp. (Japanese). CODEN: JKXXAF.

APPLICATION: JP 1998-204521 19980721.

AB The coating films are obtained by reaction of polyisocyanates with the materials obtained from thermosetting polymer-type unsatd. esters, silicones $\text{RSiMe}_2[(\text{OSiMe}_2)_n(\text{CH}_2)_k(\text{O})_l(\text{CH}_2)_m]\text{Z}$ (I; R = Me, Ph; Z = OH, epoxy, CO₂H, methacryloxy, acryloxy, dimethylolalkyl; n = 6-300; k = 1-10; l = 0-1; m = 0-6), and **dicyclohexylcarbodiimide** (II). Thus, reaction of 50 g vinyl ester (PS 6150; no.-av. mol. wt. 1650, OH value 131 mgKOH/g) with 58 g I (R = Me, Z = CO₂H, n simeq. 10, k = 10, l = m = 0; Silaplane FM 0611) in the presence of 14.5 g II in CHCl₃ gave a **graft** copolymer, 10 parts of which was cured with 1 part HMDI (Coronate HX) on a **stainless** steel sheet to give a 10 µm-thick film showing good antisoiling effect against soy sauce and water-repellent properties.

IC ICM C09D005-00
ICS C09D175-04; C09D183-10

CC 42-10 (Coatings, Inks, and Related Products)

ST unsatd **polyester** silicone **graft** antisoiling coating; polyisocyanate crosslinked **polyester** siloxane antisoiling coating; water repellent coating **polyester** siloxane **graft**; **dicyclohexylcarbodiimide** **graft polyester** siloxane antisoiling coating

IT Coating materials
(antisoiling; aq. soil-repellent coatings contg. polyisocyanate-crosslinked unsatd. **polyester-silicone graft** polymers)

IT Polymerization catalysts
(**graft, dicyclohexylcarbodiimide**; aq. soil-repellent coatings contg. polyisocyanate-crosslinked unsatd. **polyester-silicone graft** polymers)

IT Polysiloxanes, uses
Polysiloxanes, uses
(**polyester-**, **graft**, polyisocyanate-crosslinked; aq. soil-repellent coatings contg. polyisocyanate-crosslinked unsatd. **polyester-silicone graft** polymers)

IT **Polyesters**, uses
Polyesters, uses
(polysiloxane-, **graft**, polyisocyanate-crosslinked; aq. soil-repellent coatings contg. polyisocyanate-crosslinked unsatd. **polyester-silicone graft** polymers)

IT Coating materials
(water-resistant; aq. soil-repellent coatings contg. polyisocyanate-crosslinked unsatd. **polyester-silicone graft** polymers)

IT 538-75-0, **Dicyclohexylcarbodiimide**
(aq. soil-repellent coatings contg. polyisocyanate-crosslinked unsatd. **polyester-silicone graft** polymers)

IT 256379-01-8P 256379-02-9P 256382-03-3P 256382-04-4P
256382-05-5P 256382-06-6P
(aq. soil-repellent coatings contg. polyisocyanate-crosslinked unsatd. **polyester-silicone graft** polymers)

L30 ANSWER 15 OF 24 HCA COPYRIGHT 2006 ACS on STN

131:189664 In vivo assessment of a novel dacron surface with covalently bound recombinant hirudin. Wyers, Mark C.; Phaneuf, Matthew D.; Rzuclidlo, Eva M.; Contreras, Mauricio A.; LoGerfo, Frank W.; Quist, William C. (Division of Vascular Surgery, Beth Israel Deaconess Medical Center, Harvard Medical School, Children's Hospital, Boston, MA, 02215, USA). Cardiovascular Pathology, 8(3), 153-159 (English) 1999. CODEN: CATHE8. ISSN: 1054-8807. Publisher: Elsevier

Science Inc..

AB Prosthetic arterial **graft** surfaces are relatively thrombogenic and fail to heal with a cellular neointima. The goal of this study was to characterize the in vivo antithrombin properties of a novel Dacron surface with covalently linked recombinant hirudin (rHir) implanted in a canine thoracic aorta with high flow and shear rates. RHir was bound to a knitted Dacron patch using crosslinker-modified bovine serum albumin (BSA) as a basecoat protein. BSA was first reacted with the hetero-bifunctional crosslinker, sulfo-SMCC. This BSA-SMCC complex was then bound to the carboxylic acid groups of hydrolyzed Dacron patches using the **carbodiimide** crosslinker, 1-ethyl-3-(3-dimethylaminopropyl) **carbodiimide** hydrochloride. Iodinated, Traut's-modified rHir (¹²⁵I-rHir-SH) was then reacted with the Dacron-BSA-SMCC surface, thereby covalently binding ¹²⁵I-rHir. **Graft** segments were washed and sonicated to remove any nonspecifically bound ¹²⁵I-rHir. Dacron-BSA-SMCC-S-¹²⁵I-rHir patches (n = 5) and control Dacron-BSA patches (n = 5) were implanted in series in the thoracic aortas of canines. These patches were exposed to nonheparinized, arterial blood flow for 2 h. Patches were explanted and assessed for ¹²⁵I-rHir loss. Antithrombin activity of explanted 1-cm² patch segments was evaluated using a **chromogenic** assay with 1, 5, 10, 15 units of added thrombin. Light microscopy was performed to qual. examine the pseudointima. Two animals were excluded from the study owing to excessive bleeding through the knitted ¹²⁵I-rHir patch. Comparison of preoperative and postoperative ¹²⁵I-rHir γ counts revealed an overall decrease of $20 \pm 5.4\%$ over the period studied. Explanted ¹²⁵I-rHir patch segments were able to inhibit 1, 5, and 7 NIHU of thrombin, demonstrating retained antithrombin activity. Gross and microscopic examn. of the control and test Dacron surfaces showed marked differences. Dacron surfaces with covalently bound ¹²⁵I-rHir had no gross thrombus and a thin pseudointima of platelets and plasma proteins. In contrast, the control patches had a thick pseudointima composed of fibrin rich thrombus. RHir, covalently bound to Dacron patches, maintains its biol. activity as well as prevents thrombus formation on the **graft** surface. This novel antithrombin coating, by modifying the blood/**graft** interface, may improve both short- and long-term patency in small-diam. prosthetic arterial **grafts** and has applications with respect to other implantable or indwelling biomaterials.

CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 1

IT **Polyester** fibers, biological studies

(conjugates with hirudin; in vivo assessment of novel dacron surface with covalently bound recombinant hirudin)

L30 ANSWER 16 OF 24 HCA COPYRIGHT 2006 ACS on STN

130:325734 A novel gas sensor from crystalline polymer-**grafted**

carbon black. Responsibility of electric resistance of composite from crystalline polymer-**grafted carbon black** against solvent vapor. Tsubokawa, Norio; Shirai, Yukio; Okazaki, Masaki; Maruyama, Kiyotaka (Department Material Science Technology, Faculty Engineering, Niigata University, Niigata, 950, Japan). Polymer Bulletin (Berlin), 42(4), 425-431 (English) **1999**. CODEN: POBUDR. ISSN: 0170-0839. Publisher: Springer-Verlag.

AB Cryst. polymers, such as poly(ϵ -caprolactone) (PCL), poly(ethylene adipate) (PEA), and polyethylene (PE), were successfully **grafted** onto **carbon black** surface by direct condensation of terminal groups of these polymers with carboxyl groups on the surface using N,N'-**dicyclohexylcarbodiimide** as a condensing agent. The elec. resistance of a composite prepd. from these cryst. polymer- **grafted carbon black** drastically increased to 104-105 times of initial resistance in good solvent vapor of **grafted** polymer and returned to initial resistance when it was transferred into dry air. However, the change of elec. resistance of the composite hardly obsd. in poor solvent vapor. These results suggest that these composite can be applied as a novel gas sensor.

IT **24980-41-4DP**, Poly(ϵ -caprolactone), **graft** products with surface-modified **carbon black**
25248-42-4DP, Poly[oxy(1-oxo-1,6-hexanediyl)], **graft** products with surface-modified **carbon black**
(prepn. of cryst. polymer-**grafted carbon blacks** and elec. resistance of their composites usable as gas sensors)

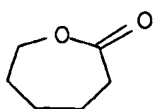
RN 24980-41-4 HCA

CN 2-Oxepanone, homopolymer (9CI) (CA INDEX NAME)

CM 1

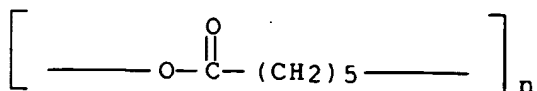
CRN 502-44-3

CMF C6 H10 O2



RN 25248-42-4 HCA

CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



- CC 37-5 (Plastics Manufacture and Processing)
Section cross-reference(s): 76
- ST elec resistance polymer **grafted carbon black** composite; gas sensor polymer **grafted carbon black** composite; polycaprolactone **grafted carbon black** gas sensor; polyethylene adipate **grafted carbon black** gas sensor; polyethylene **grafted carbon black** gas sensor
- IT Natural gas, analysis
(liquefied, vapor; gas sensor properties of cryst. polymer composites contg. **grafted carbon black**)
- IT **Carbon black**, preparation
(polymer-**grafted**; prepn. of cryst. polymer-**grafted carbon blacks** and elec. resistance of their composites usable as gas sensors)
- IT Electric resistance
Gas sensors
(prepn. of cryst. polymer-**grafted carbon blacks** and elec. resistance of their composites usable as gas sensors)
- IT Kerosene
Ligroine
(vapor; gas sensor properties of cryst. polymer composites contg. **grafted carbon black**)
- IT 9002-88-4P, Polyethylene 24937-05-1P, Poly(ethylene adipate), SRU 24938-37-2P, Poly(ethylene adipate) **24980-41-4DP**, Poly(ε-caprolactone), **graft** products with surface-modified **carbon black** **25248-42-4DP**, Poly[oxy(1-oxo-1,6-hexanediyl)], **graft** products with surface-modified **carbon black**
(prepn. of cryst. polymer-**grafted carbon blacks** and elec. resistance of their composites usable as gas sensors)
- IT 67-56-1, Methanol, analysis 74-98-6, Propane, analysis 106-97-8, Butane, analysis 108-88-3, Toluene, analysis 109-99-9, THF, analysis 110-54-3, Hexane, analysis 141-78-6, Ethyl acetate, analysis 7732-18-5, Water, analysis
(vapor; gas sensor properties of cryst. polymer composites contg.

grafted carbon black)

L30 ANSWER 17 OF 24 HCA COPYRIGHT 2006 ACS on STN

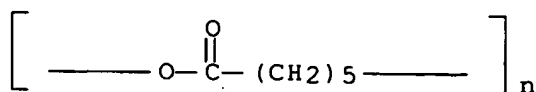
127:359260 Nontoxic and safe **polycarbodiimides**, their preparation and use as crosslinking agents, curable at low temperatures, in various resin compositions. Nakamura, Michiei; Simanaka, Hiroyuki; Sugawara, Eiichi; Wakebe, Yoshitaka; Okura, Ken; Kawamura, Tatsuo; Takahashi, Masayuki; Takezawa, Nobuo (Dainichiseika Color and Chemicals Mfg. Co., Ltd., Japan; Ukima Colour & Chemicals Mfg. Co., Ltd.). Eur. Pat. Appl. EP 805172 A2 **19971105**, 11 pp. DESIGNATED STATES: R: CH, DE, ES, FR, GB, IT, LI. (English). CODEN: EPXXDW. APPLICATION: EP 1997-106927 19970425. PRIORITY: JP 1996-130624 19960430.

AB A polyfunctional **polycarbodiimide** compd., which comprises at least four mol. chains contg. a **carbodiimido** N:C:N group bonded independently to a backbone, can be produced by reacting (a) an isocyanate compd. having at least one **carbodiimido** group and at least one isocyanate group with (b) a polyol, polyamine and/or amino alc. having at least four hydroxyl, primary amino and/or secondary amino groups in a mol. Thus, 631.4 parts (by wt.) 30% soln. of **polyhexamethylenecarbodiimide** diisocyanate obtained by condensing 4 mols. of hexamethylene diisocyanate using a **carbodiimidation** catalyst was mixed with 1.3 parts 5% soln. of dibutyltin dilaurate and 468.5 parts 50% soln. of polyethylene glycol monomethyl ether, followed by an addn. of 37.6 parts 50% soln. of decaglyceryl monolaurate to give a **polycarbodiimide** compd. (crosslinking agent) having 11 **carbodiimido**-contg. **side chains** and 30 **carbodiimido** groups in total in a mol. A resin-based printing paste comprising 4:60:36 acrylic acid-Et acrylate-styrene copolymer latex 20, 20% solids crosslinking agent prepd. above 5, water 10, 20% solids polyoxyethylene alkylphenyl ether 5, mineral terpin 55, and aq. copper phthalocyanine blue **pigment** 5 parts was applied on a knitted cotton fabric by a screen printing machine and the printed fabric was excellent in various fastnesses, soft, and a vivid blue **color**.

IT **25248-42-4D**, Poly[oxy(1-oxo-1,6-hexanediyl)], diol derivs., polymers with diols and TDI
(prepn. of **polycarbodiimide** crosslinking agents and their use in low-temp.-curable resin compns. for treatment of articles)

RN 25248-42-4 HCA

CN Poly[oxy(1-oxo-1,6-hexanediyl)] (9CI) (CA INDEX NAME)



IC ICM C08G018-79
 ICS C08G018-10; C08G018-28; C08G018-08; C07C267-00; C08G085-00;
 C08L101-00

ICI C08L101-00, C08L079-00

CC 35-5 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 39, 40, 42, 43, 55

ST nontoxic **polycarbodiimide** crosslinking agent prepn; safety
 resin compn **polycarbodiimide** crosslinking agent;
 hexamethylene diisocyanate decaglyceryl monolaurate copolymer prepn;
 polyethylene glycol monomethyl ether termination
polycarbodiimide; acrylic acid ethyl acrylate styrene
 copolymer; printing cotton fabric knit

IT Automobiles
 (bumpers, polypropylene, moldings; prepn. of
polycarbodiimide crosslinking agents and their use in
 low-temp.-curable resin compns. for treatment of articles)

IT **Acrylic polymers**, uses
Polyesters, uses
 Polyurethanes, uses
 (carboxy-contg.; prepn. of **polycarbodiimide**
 crosslinking agents and their use in low-temp.-curable resin
 compns. for treatment of articles)

IT Textiles
 (cotton, knitted, printing pastes for; prepn. of
polycarbodiimide crosslinking agents and their use in
 low-temp.-curable resin compns. for treatment of articles)

IT **Polyester** fibers, uses
 (fabrics, tufted or woven, coatings for; prepn. of
polycarbodiimide crosslinking agents and their use in
 low-temp.-curable resin compns. for treatment of articles)

IT Polyamides, uses
Polyesters, uses
 (films, inks for; prepn. of **polycarbodiimide**
 crosslinking agents and their use in low-temp.-curable resin
 compns. for treatment of articles)

IT Inks
 (gravure, water-thinned; prepn. of **polycarbodiimide**
 crosslinking agents and their use in low-temp.-curable resin
 compns. for treatment of articles)

IT Inks
 (gravure; prepn. of **polycarbodiimide** crosslinking
 agents and their use in low-temp.-curable resin compns. for
 treatment of articles)

IT **Acrylic polymers**, uses
 (hydroxy-contg.; prepn. of **polycarbodiimide**
 crosslinking agents and their use in low-temp.-curable resin

- compns. for treatment of articles)
- IT Plastic films
(inks for gravure printing of; prepn. of **polycarbodiimide**
crosslinking agents and their use in low-temp.-curable resin
compns. for treatment of articles)
- IT Coating materials
(moisture-permeable; prepn. of **polycarbodiimide**
crosslinking agents and their use in low-temp.-curable resin
compns. for treatment of articles)
- IT Textile printing
Textile printing
(pastes; prepn. of **polycarbodiimide** crosslinking agents
and their use in low-temp.-curable resin compns. for treatment of
articles)
- IT Floors
(poly(vinyl chloride); prepn. of **polycarbodiimide**
crosslinking agents and their use in low-temp.-curable resin
compns. for treatment of articles)
- IT Polyoxyalkylenes, preparation
Polyoxyalkylenes, preparation
Polyoxyalkylenes, preparation
(**polycarbodiimide**-polyurethane-, crosslinking agent;
prepn. of **polycarbodiimide** crosslinking agents and
their use in low-temp.-curable resin compns. for treatment of
articles)
- IT Polyurethanes, preparation
Polyurethanes, preparation
Polyurethanes, preparation
(polyoxyalkylene-**polycarbodiimide**-, crosslinking agent;
prepn. of **polycarbodiimide** crosslinking agents and
their use in low-temp.-curable resin compns. for treatment of
articles)
- IT **Polycarbodiimides**
Polycarbodiimides
Polycarbodiimides
(polyoxyalkylene-polyurethane-, crosslinking agent; prepn. of
polycarbodiimide crosslinking agents and their use in
low-temp.-curable resin compns. for treatment of articles)
- IT Polyurethanes, uses
Polyurethanes, uses
(polyurea-; prepn. of **polycarbodiimide** crosslinking
agents and their use in low-temp.-curable resin compns. for
treatment of articles)
- IT Polyureas
Polyureas
(polyurethane-; prepn. of **polycarbodiimide** crosslinking
agents and their use in low-temp.-curable resin compns. for

treatment of articles)

IT Adhesives
 Coating materials
 Crosslinking agents
Paints
 Waterproofing agents
 (prepn. of **polycarbodiimide** crosslinking agents and
 their use in low-temp.-curable resin compns. for treatment of
 articles)

IT Laminated plastic films
 (prepn. of **polycarbodiimide** crosslinking agents and
 their use in low-temp.-curable resin compns. for treatment of
 articles)

IT Polyurethanes, preparation
 (prepn. of **polycarbodiimide** crosslinking agents and
 their use in low-temp.-curable resin compns. for treatment of
 articles)

IT Metals, uses
 Nonwoven fabrics
 Paper
 Plastics, uses
 Textiles
 Threads
 Wood
 Yarns
 (prepn. of **polycarbodiimide** crosslinking agents and
 their use in low-temp.-curable resin compns. for treatment of
 articles)

IT Acrylic rubber
 (prepn. of **polycarbodiimide** crosslinking agents and
 their use in low-temp.-curable resin compns. for treatment of
 articles)

IT Inks
 (printing; prepn. of **polycarbodiimide** crosslinking
 agents and their use in low-temp.-curable resin compns. for
 treatment of articles)

IT Pastes
 Pastes
 (textile printing; prepn. of **polycarbodiimide**
 crosslinking agents and their use in low-temp.-curable resin
 compns. for treatment of articles)

IT Coating materials
 (water-resistant; prepn. of **polycarbodiimide**
 crosslinking agents and their use in low-temp.-curable resin
 compns. for treatment of articles)

IT Adhesives
 (water-thinned; prepn. of **polycarbodiimide** crosslinking

- agents and their use in low-temp.-curable resin compns. for treatment of articles)
- IT 71-36-3DP, 1-Butanol, reaction products with polyoxyalkylene-**polycarbodiimide**-polyurethanes, preparation 143-28-2DP, reaction products with polyoxyalkylene-**polycarbodiimide**-polyurethanes 9003-13-8DP, Polypropylene glycol monobutyl ether, reaction products with polyoxyalkylene-**polycarbodiimide**-polyurethanes 9004-74-4DP, Polyethylene glycol monomethyl ether, reaction products with polyoxyalkylene-**polycarbodiimide**-polyurethanes 9038-95-3DP, Polyoxyethylene-polyoxypropylene monobutyl ether, reaction products with polyoxyalkylene-**polycarbodiimide**-polyurethanes 198636-00-9DP, Dipentaerythritol monolaurate-hexamethylene diisocyanate copolymer, reaction products with polypropylene glycol monobutyl ether 198646-64-9DP, Decaglycerol monolaurate-hexamethylene diisocyanate copolymer, reaction products with polyethylene glycol monomethyl ether 198646-65-0DP, Hexamethylene diisocyanate-polyoxyethylene sorbitol monolaurate copolymer, reaction products with polyoxyethylene-polyoxypropylene monobutyl ether or polyethylene glycol monomethyl ether 198646-66-1DP, Polyoxyethylene sorbitol monolaurate-tolylene diisocyanate copolymer, reaction products with polyethylene glycol monomethyl ether, oleyl alc., n-butanol, or n-butanol and sulfanyltrietylamide
(crosslinking agent; prepn. of **polycarbodiimide** crosslinking agents and their use in low-temp.-curable resin compns. for treatment of articles)
- IT 9002-86-2, Poly(vinyl chloride)
(film or flooring material, inks or coatings for; prepn. of **polycarbodiimide** crosslinking agents and their use in low-temp.-curable resin compns. for treatment of articles)
- IT 9003-07-0, Polypropylene
(film or molding, adhesives and inks and coatings for; prepn. of **polycarbodiimide** crosslinking agents and their use in low-temp.-curable resin compns. for treatment of articles)
- IT 9002-88-4, Polyethylene
(film, inks for; prepn. of **polycarbodiimide** crosslinking agents and their use in low-temp.-curable resin compns. for treatment of articles)
- IT 107896-64-0P, Diphenylmethane diisocyanate-ethylene oxide-propylene oxide block copolymer 198636-01-0P, Dimethylolpropionic acid-diphenylmethane diisocyanate-ethylene glycol-tetramethylene glycol copolymer
(prepn. of **polycarbodiimide** crosslinking agents and their use in low-temp.-curable resin compns. for treatment of articles)
- IT 629-11-8D, 1,6-Hexanediol, polymers with diols and TDI 4767-03-7D, polymers with diols and TDI 25119-83-9, Acrylic acid-butyl

acrylate copolymer 25135-39-1, Acrylic acid-ethyl acrylate-methyl **methacrylate copolymer** 25215-62-7, Monobutyl maleate-styrene copolymer **25248-42-4D**, Poly[oxy(1-oxo-1,6-hexanediyl)], diol derivs., polymers with diols and TDI 25585-77-7, Acrylic acid-ethyl acrylate-styrene copolymer 26471-62-5D, TDI, polymers with polycaprolactonediol and polyols 29035-81-2, Acrylic acid-vinyl acetate-vinyl chloride copolymer 198636-03-2, Diethylenetriamine-dimethylolpropionic acid-isophorone diisocyanate-tetramethylene glycol copolymer triethylamine salt 198636-04-3, Ethyl methacrylate-2-hydroxyethyl methacrylate-methacrylic acid-methyl methacrylate-octyl **methacrylate copolymer** (prepn. of **polycarbodiimide** crosslinking agents and their use in low-temp.-curable resin compns. for treatment of articles)

L30 ANSWER 18 OF 24 HCA COPYRIGHT 2006 ACS on STN

127:39703 Covalent linkage of recombinant hirudin to poly(ethylene terephthalate) (Dacron): creation of a novel antithrombin surface. Phaneuf, Matthew D.; Berceli, Scott A.; Bide, Martin J.; Quist, William C.; LoGerfo, Frank W. (Vascular Surgery Research, Deaconess Hospital/Harvard Medical School, Boston, MA, 02215, USA). Biomaterials, 18(10), 755-765 (English) 1997. CODEN: BIMADU. ISSN: 0142-9612. Publisher: Elsevier.

AB Thrombus formation and intimal hyperplasia on the surface of implantable biomaterials such as poly(ethylene terephthalate) (Dacron) vascular **grafts** are major concerns when utilizing these materials in the clin. setting. Thrombin, a pivotal enzyme in the blood coagulation cascade primarily responsible for thrombus formation and smooth muscle cell activation, has been the target of numerous strategies to prevent this phenomenon from occurring. The purpose of this study was to covalently immobilize the potent, specific antithrombin agent recombinant hirudin (rHir) to a modified Dacron surface and characterize the in vitro efficacy of thrombin inhibition by this novel biomaterial surface. Bovine serum albumin (BSA), which was selected as the 'basecoat' protein was reacted with various molar ratios of the crosslinker sulfosuccinimidyl 4-(N-maleimidomethyl) cyclohexane-1-carboxylate (sulfo-SMCC; 1:5-1:50). These BSA-SMCC complexes were then covalently linked to sodium hydroxide-hydrolyzed Dacron (HD) segments via the cross-linker 1-ethyl-3-(3-dimethylamino-propyl) **carbodiimide** hydrochloride (EDC). Covalent linkage of these complexes to HD (HD-BSA-SMCC) was not affected by any of the sulfo-SMCC cross-linker ratios assayed. RHir, which as initially reacted with 2-iminothiolane hydrochloride (Traut's reagent) in order to create sulphydryl groups, was then covalently bound to these HD-BSA-SMCC surfaces (HD-BSA-SMCC-S-rHir). The 1:50 (BSA:sulfo-SMCC) HD-BSA-SMCC-S-rHir segments bound 22-fold more rHir (111 bg oer ng

/Dacron) compared to control segments and also possessed the greatest thrombin inhibition of the segments evaluated using a **chromogenic** substrate assay for thrombin. Further characterization of the HD-BSA-SMCC-S-rHir segments demonstrated that max. thrombin inhibition was 20.43 NIHU, 14.6-fold greater inhibition than control segments (1.4 NIHU). Thrombin inhibition results were confirmed by ¹²⁵I-thrombin binding expts., which demonstrated that the 1:50 HD-BSA-SMCC-S-rHir segments was also significantly less than the control segments. Thus, these results demonstrate that rHir can be covalently bound to a clin. utilized biomaterial (Dacron) while still maintaining its ability to bind and inhibit thrombin.

CC 63-7 (Pharmaceuticals)

ST hirudin conjugate polyethylene terephthalate antithrombogenic; vascular **graft** hirudin conjugate Dacron

IT **Polyesters**, biological studies

(reaction products with hirudin; covalent linkage of recombinant hirudin to poly(ethylene terephthalate) for a antithrombin surface)

L30 ANSWER 19 OF 24 HCA COPYRIGHT 2006 ACS on STN

124:298767 Surface modification of polyetherurethaneureas and their antithrombogenicity. Kang, I.-K.; Kwon, O. H.; Byun, K. H.; Kim, Y. H. (Dep. Polymer Sci., Kyungpook Natl. Univ., Taegu, 702, S. Korea). Journal of Materials Science: Materials in Medicine, 7(3), 135-40 (English) 1996. CODEN: JSMMEI. ISSN: 0957-4530. Publisher: Chapman & Hall.

AB Polyetherurethaneurea (PU) films were treated by oxygen plasma discharge followed by acrylic acid (AA) **grafting**. The carboxyl groups of the AA-**grafted** PU (PU-AA) surface were coupled with bovine serum albumin and heparin via water sol. **carbodiimide**. Surface characterization of the modified PUs was carried out by attenuated total reflection Fourier transform IR (ATR-FTIR) spectroscopy and electron spectroscopy for chem. anal. (ESCA). The amt. of immobilized albumin (AL) and heparin (HE) on the PU surface was 1.8 and 1.5 µg/cm², resp., as detd. by the **dye** interaction method. Interactions between the surface-modified PUs and blood components such as plasma proteins and platelets were investigated to evaluate the blood compatibility of the samples. Plasma recalcification time (PRT) and activated partial thromboplastin time (APTT) of the albumin-immobilized PU (PU-AL) were almost the same as those of PU, while platelets were less adhered on the PU-AL than on PU. On the other hand, PRT and APTT of the PU-HE were significantly longer than those of the PU, PU-AA, and PU-AL. Moreover, adhesion of platelets was effectively suppressed on the PU-HE, leading to good in vitro blood compatibility.

CC 63-7 (Pharmaceuticals)

Section cross-reference(s): 38

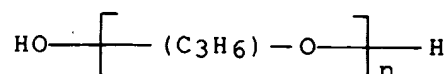
- ST **polyether** urethane urea surface modification
antithrombogenicity; antithrombogenic prosthetic
polyetherurethaneurea surface modification
- IT Urethane polymers, biological studies
(**polyether**-polyurea-, surface modification effect on
antithrombogenicity of polyetherurethaneureas)
- IT Urethane polymers, biological studies
(**polyether**-polyurea-, **graft**, with acrylic
acid, immobilized; surface modification effect on
antithrombogenicity of polyetherurethaneureas)
- IT 79-10-7DP, Acrylic acid, **grafts** with polyetherurethaneurea
9053-66-1DP, 4,4'-Diphenylmethane diisocyanate-ethylene
diamine-polytetramethylene glycol copolymer, **grafts** with
acrylic acid
(surface modification effect on antithrombogenicity of
polyetherurethaneureas)

L30 ANSWER 20 OF 24 HCA COPYRIGHT 2006 ACS on STN

123:315561 **Grafting** reaction of surface carboxyl groups on
carbon black with polymers having terminal
hydroxyl or amino groups using N,N'-dicyclohexyl-
carbodiimide as a condensing agent. Tsubokawa, N.; Hosoya,
M.; Kurumada, J. (Department of Material and Chemical Engineering,
Faculty of Engineering, Niigata University, 8050, Ikarashi 2-nocho,
Niigata, 950-21, Japan). Reactive & Functional Polymers, 27(1),
75-81 (English) 1995. CODEN: RFPOF6. ISSN: 1381-5148.
Publisher: Elsevier.

AB **Grafting** of polymers onto **carbon black** [Neospectra II, Columbian
Carbon Co.; **channel black** FW 200, Degussa A.G.; furnace black
Philblack O, Phillips Petroleum Co.] surfaces was carried out by
direct condensation of surface carboxyl groups with functional
polymers. The reaction of surface carboxyl groups with functional
polymers having hydroxyl or amino groups proceeded readily in the
presence of N,N'-dicyclohexyl-**carbodiimide** (DCC) as condensing agent
at 30° and the corresponding polymers were **grafted** onto **carbon black**
surface with ester or amide bonds. The percentage of **grafting** of
diol poly(propylene oxide) (PPG Mn = 2.0 + 103) and diamine-type
poly(dimethylsiloxane) (SDA: Mn = 1.7 + 103) was 24.5 and 40.2%,
resp. No **grafting** reaction onto **carbon black** surface, however, was
obsd. in the absence of DCC. The percentage of **grafting** increased
with increasing carboxyl group content of **carbon black** and increasing
reaction temp. The percentage of **grafting** and the no. of **grafted**
polymer chains decreased with increasing mol. wt. of functional
polymers, because the reaction of surface carboxyl groups was
inhibited by the already **grafted** polymer chains. The polymer-**grafted**
carbon black gave a stable colloidal dispersion in a suitable solvent
for the **grafted** polymer.

IT 25322-69-4DP, Poly(propylene glycol), reaction products with **carbon blacks**
 (grafting carbon black with
 hydroxyl or amino terminated polymers using N,N'-dicyclohexyl-**carbodiimide** as a condensing agent)
 RN 25322-69-4 HCA
 CN Poly[oxy(methyl-1,2-ethanediyl)], α -hydro- ω -hydroxy-
 (9CI) (CA INDEX NAME)



CC 37-6 (Plastics Manufacture and Processing)
 Section cross-reference(s): 57
 ST **carbon black** surface **grafting**
 polyglycol; polydiamine **carbon black**
 condensation imide
 IT Siloxanes and Silicones, preparation
 (diol- and diamine-terminated reaction products with
carbon blacks; grafting
carbon black with hydroxyl or amino terminated
 polymers using N,N'-dicyclohexyl-**carbodiimide** as a
 condensing agent)
 IT **Carbon black**, preparation
 (surface reaction products with diol- and diamine-terminated
 polymers; **grafting carbon black**
 with hydroxyl or amino terminated polymers using
 N,N'-dicyclohexyl-**carbodiimide** as a condensing agent)
 IT 538-75-0, N,N'-Dicyclohexyl-**carbodiimide**
 (grafting carbon black with
 hydroxyl or amino terminated polymers using N,N'-dicyclohexyl-
carbodiimide as a condensing agent)
 IT 9016-00-6DP, Di-Me siloxane, SRU, reaction products with
carbon blacks 25322-68-3DP, Poly(ethylene
 glycol), reaction products with **carbon blacks**
 25322-69-4DP, Poly(propylene glycol), reaction products with
carbon blacks 31900-57-9DP, Dimethylsilanediol
 homopolymer, reaction products with **carbon blacks**
 (grafting carbon black with
 hydroxyl or amino terminated polymers using N,N'-dicyclohexyl-
carbodiimide as a condensing agent)

122:189197 Surface modification of carbon microbead by the **grafting** of polymers. Tsubokawa, Norio; Hayashi, Shinji (Faculty Engineering, Niigata University, Niigata, 950-21, Japan). Journal of Macromolecular Science, Pure and Applied Chemistry, A32(3), 525-35 (English) 1995. CODEN: JSPCE6. ISSN: 1060-1325. Publisher: Dekker.

AB The surface **grafting** of polymers onto carbon microbead, sphere of carbonized phenol resin, was achieved by two methods: (1) the radical **graft** polymn. initiated by azo groups introduced onto the surface and (2) the trapping of polymer radicals by a carbon microbead surface. The introduction of azo groups onto a carbon microbead surface was achieved by the reaction of surface carboxyl groups on the bead with 2,2'-azobis[2-(hydroxymethyl)- propionitrile] using N,N'-**dicyclohexylcarbodiimide** as a condensing agent. The radical polymn. of Me methacrylate was initiated by surface azo groups introduced onto the surface, and PMMA was **grafted** onto the bead through the propagation of polymer chains from the surface: the percentage of **grafting** reached to 18% after 16 h. Furthermore, it was found that by the reaction of an azo polyamide (a polyamide having an azo bond in the main chain) and peroxide polymers (polymers having peroxide groups in the main chain and/or **pendant** group) with carbon microbead at 70-110°, polymer radicals formed by the thermal decompn. of these azo and peroxide polymers gave the corresponding polymer-**grafted** carbon microbead. The percentage of **grafting** decreased with increasing mol. wt. of the polymer radicals. The reactivity of surface functional groups and polycondensed arom. rings on carbon microbead are analogous with those of a **carbon black** surface.

CC 37-6 (Plastics Manufacture and Processing)

ST surface modification carbon microbead **grafting**; azo carbon microbead **grafting** polymer; **methacrylate** polymer **grafting** carbon microbead; polyamide azo **grafting** carbon microbead; peroxide polymer **grafting** carbon microbead

IT Siloxanes and Silicones, preparation
(polyamide-, surface modification of carbon microbead by **grafting** of polymers)

IT Polyamides, preparation
(siloxane-, surface modification of carbon microbead by **grafting** of polymers)

IT 19706-80-0
(carbon microbead surface treatment with azo compd. for **grafting** with Me methacrylate)

IT 161776-43-8P 161776-44-9P 161776-45-0P
(surface modification of carbon microbead by **grafting** of polymers)

119:161523 **Grafting** of a functionalized **side-chain** liquid-crystal polymer on carbon fiber surfaces: novel coupling agents for fiber/polymer matrix composites. Le Bonheur, Vassoudevane; Stupp, Samuel I. (Dep. Mater. Sci. Eng., Univ. Illinois, Urbana, IL, 61801, USA). Chemistry of Materials, 5(9), 1287-92 (English) 1993. CODEN: CMATEX. ISSN: 0897-4756.

AB Covalent **grafting** to functionalized carbon fibers of a specially designed liq.-cryst. monomer and its corresponding **side-chain** liq.-cryst. polymer contg. **pendant** chem. functions on their mesogenic groups was studied. From a materials point of view these liq.-cryst. compds. could act as coupling agents as fiber/polymer matrix interfaces, offering a mechanism to control composite properties not only through bonding but also through their spontaneous mol. orientation in interfacial regions. The **grafting** methodol. for both monomer and polymer to fiber surfaces involved esterification through **carbodiimide** chem. in soln. Carboxylic acid groups found on functionalized carbon fiber surfaces were esterified to phenolic functions in the **side chains** of the exptl. polymer. Following **grafting** procedures the fibers were analyzed by SEM and by contact angle measurements. SEM micrographs of fibers **grafted** with polymer revealed the presence of strongly attached polymeric material on the **graphitic** surface after rigorous extn. with polymer solvent. Contact angle measurements and polar/dispersive free energy anal. indicated also a smaller polar component of the surface free energy of fibers possibly due to the hydrophobic polymer backbone **grafted** on the carbon surfaces. The esterification reaction **grafted** the polyphenolic liq.-crystal polymer on **graphite** fiber surfaces.

IT 7440-44-0
(carbon fibers, **grafting** on functionalized, with hydroxybiphenylbenzoate-contg. monomer and polymer liq. crystals, surface properties in relation to)

RN 7440-44-0 HCA

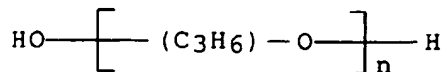
CN Carbon (7CI, 8CI, 9CI) (CA INDEX NAME)

c

IT 25322-69-4, Polypropylene glycol
(contact angle of, on hydroxybiphenylbenzoate-contg. liq. crystal-**grafted** carbon fibers)

RN 25322-69-4 HCA

CN Poly[oxy(methyl-1,2-ethanediyl)], α -hydro- ω -hydroxy-
(9CI) (CA INDEX NAME)



- CC 37-6 (Plastics Manufacture and Processing)
Section cross-reference(s): 75
- ST liq crystal **grafting** carbon fiber; surface property
grafting carbon fiber; morphol **grafting** carbon
fiber; contact angle **grafting** carbon fiber
- IT Carbon fibers, miscellaneous
(**grafting** on functionalized, with
hydroxybiphenylbenzoate-contg. monomer and polymer liq. crystals,
surface properties in relation to)
- IT Liquid crystals, polymeric
(hydroxybiphenylbenzoate deriv. polymers, functionalized carbon
fiber **grafting** with, surface properties in relation to)
- IT Liquid crystals
(hydroxybiphenylbenzoate derivs., functionalized carbon fiber
grafting with, surface properties in relation to)
- IT Surface energy
(of hydroxybiphenylbenzoate-contg. liq. crystal-**grafted**
carbon fibers)
- IT Contact angle
(of liqs., on hydroxybiphenylbenzoate-contg. liq. crystal-
grafted carbon fibers)
- IT 7440-44-0
(carbon fibers, **grafting** on functionalized, with
hydroxybiphenylbenzoate-contg. monomer and polymer liq. crystals,
surface properties in relation to)
- IT 56-81-5, 1,2,3-Propanetriol, properties 75-12-7, Formamide,
properties 544-76-3, n-Hexadecane 7732-18-5, Water, properties
25322-69-4, Polypropylene glycol
(contact angle of, on hydroxybiphenylbenzoate-contg. liq.
crystal-**grafted** carbon fibers)
- IT 538-75-0, 1,3-Dicyclohexylcarbodiimide
(**grafting** of hydroxybiphenylbenzoate-contg. liq.
crystals on carbon fibers in presence of)
- IT 149828-91-1 149828-92-2
(**grafting** of liq.-cryst., on functionalized carbon
fibers, surface properties in relation to)

L30 ANSWER 23 OF 24 HCA COPYRIGHT 2006 ACS on STN

114:118095 Process for covalent surface modification of hydrophobic
polymers and affinity membranes made therefrom. Azad, A. R. M.;
Goffe, Randal A. (Sepracor, Inc., USA). PCT Int. Appl. WO 9004609

A1 19900503, 145 pp. DESIGNATED STATES: W: AU, BB, BG, BR, DK, FI, HU, JP, KR, LK, MC, MG, MW, NO, RO, SD, SU; RW: AT, BE, BF, BJ, CF, CG, CH, CM, DE, FR, GA, GB, IT, LU, ML, MR, NL, SE, SN, TD, TG. (English). CODEN: PIXXD2. APPLICATION: WO 1989-US4620 19891016. PRIORITY: US 1988-258406 19881017.

- AB The title process comprises e.g. (1) contacting a hydrophobic polymer with a soln. of a 1st nonsolubilizing solvent and a linker for sufficient time to form a covalent bond between the linker for sufficient time to form a covalent bond between the linker and a functionalizable **side chain** of the hydrophobic polymer; (2) contacting the reacted polymer of 1 with a soln. of a 2nd nonsolubilizing solvent and a macromol. for sufficient time to covalently bind the macromol. to the covalently bonded linker moiety. The above product may then be reacted with a reagent capable of producing active sites on the covalently bonded macromol., followed by reaction the produced active sites with a ligand. The process is conveniently carried out under heterogeneous conditions and proceeds with without a significant redn. in microporous membrane pore dimensions or hydraulic permeability of the original unmodified membrane. Also provided are a 4-component dope compn. and a spinnerette assembly useful for the manuf. of the polymers of the invention. Thus, **poly(ether sulfone)/poly(ethylene oxide)** hollow fiber membranes were prep'd., treated with ethylene glycol diglycidyl ether, and then reacted with hydroxyethyl cellulose. The resulting fibers were activated with 2-fluoro-1-methylpyridinium p-toluenesulfonate and then reacted with antibodies to blood coagulation factor VIII. The resulting affinity membrane was used to purify factor VIII 115-fold from a factor VIII conc. Details of manuf. of the polymers of the invention are given, as are schematic diagrams of the spinnerette assembly.
- IC ICM C08F008-00
- ICS C08F008-06; C08F008-10; C08F008-14; C08F008-28; C08F008-32; C08F008-42; C08F008-44; C08F008-46; C08J003-24; C08J005-18; C08J005-20
- CC 9-3 (Biochemical Methods)
Section cross-reference(s): 35
- IT Polyoxyalkylenes, biological studies
Acrylic polymers, uses and miscellaneous
(in surface-modified hollow-fiber membrane manuf.)
- IT Polycarbonates, biological studies
Polyesters, biological studies
Polyimides, uses and miscellaneous
Polymers, uses and miscellaneous
Siloxanes and Silicones, biological studies
Polysulfones, uses and miscellaneous
Polythioarylenes
(surface modification of, for affinity membrane manuf.)

- IT **Dyes**
 Plasmid and Episome
 Surfactants
 Agglutinins and Lectins
 Antibodies
 Antigens
 Blood-coagulation factors
 Hormones
 Receptors
 (surface-modified polymer conjugate with, for affinity membrane manuf.)
- IT Polyketones
 Polysulfones, uses and miscellaneous
 (**polyether-**, surface modification of, for affinity membrane manuf.)
- IT **Polyethers**, biological studies
 (polyketone-, surface modification of, for affinity membrane manuf.)
- IT **Polyethers**, uses and miscellaneous
 (polysulfone-, surface modification of, for affinity membrane manuf.)
- IT 151-51-9, **Carbodiimide** 506-68-3, Cyanogen bromide
 2224-15-9, Ethylene glycol diglycidyl ether 2425-79-8
 58086-67-2, 2-Fluoro-1-methylpyridinium p-toluenesulfonate
 67-63-0, 2-Propanol, uses and miscellaneous 75-05-8, Acetonitrile,
 uses and miscellaneous 79-11-8, Chloroacetic acid, uses and
 miscellaneous 106-89-8, uses and miscellaneous
 (in polymer surface modification for affinity membrane manuf.)
- L30 ANSWER 24 OF 24 HCA COPYRIGHT 2006 ACS on STN
- 108:114377 Manufacture of fire- and chemically resistant elastomer compositions. Corish, Patrick Joseph; Ohbi, Daljit Singh (BICC PLC, UK). Eur. Pat. Appl. EP 251792 A2 **19880107**, 10 pp.
 DESIGNATED STATES: R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE. (English). CODEN: EPXXDW. APPLICATION: EP 1987-305854 19870701. PRIORITY: GB 1986-16136 19860702.
- AB Halogen-free, fire-resistant, radiation-curable elastomeric compns., resistant to seawater, hydrocarbon oils, and hydraulic fluids, useful as elec. insulators for cables, comprise oil-resistant **pigmented polyester-polyether** and/or polyamide-**polyether** thermoplastic elastomers, nitrile rubber, optionally ≤ 1 part other diene or acrylic rubbers per 3 parts nitrile rubber, and $\text{Al}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$. The nitrile rubber has a hydrocarbon main chain having ≤ 2 (epoxidized) double bonds per 5 C atoms, ≤ 1 CN **side chains** per 22 C atoms, and ≤ 1 hetero **side chain** per 4 C atoms (with $\geq 70\%$ of the **side chains** being CN). The thermoplastic elastomer constitutes 10-70% of the total elastomer

content, and the $\text{Al}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$ content is enough to give an O index ≥ 25 but ≤ 2 times the total elastomer content. Thus, Hytrel 4056 (segmented **polyester-polyether** thermoplastic elastomer) 36, Chemigum NX 775 (carboxylated nitrile rubber) 60, Hydral 710B ($\text{Al}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$) 120, Hytrel 10 MS (master batch of **polycarbodiimide** in Hytrel) 4, SRF Black 10, 50% Silane A 172 4, Kemgard 911A (smoke suppressant) 4, 70% triallyl cyanurate 4, Dythal (Pb phthalate paste) 6, Monoplas 530 (plasticizer) 10, and Agerite Resin D 2 parts were mixed in 2 stages in a Banbury mixer, dumped, sheeted off, and cured by electron beam irradiation (dosage 175 kGy) to give specimens showing tensile strength 10.8 MPa, 100% modulus 9.6 MPa, elongation 250%, tear strength 5.6 MPa/mm, K factor insulation resistance 0.1 $\text{M}\Omega/\text{km}$, and O index 30.5. When cured samples were exposed for 28 days to diesel fuel at 20°, hydraulic fluid OX-38 at 50°, and deionized H_2O at 50°, they showed vol. swelling 8.4%, 6.3%, and 11%, resp., tensile strength retention 90%, 102%, and 73%, resp., and elongation retention 95%, 95%, and 103%, resp.

IC ICM C08L077-00
ICS C08L067-02; C08L009-02; C08L033-06; C08K003-22; C08L009-00;
C08J007-18

CC 42-11 (Coatings, Inks, and Related Products)
Section cross-reference(s): 39

ST thermoplastic elastomer fire resistance; chem resistance
thermoplastic elastomer; **polyester polyether**
rubber oil resistance; polyamide **polyether** rubber blend;
nitrile rubber blend chem resistance; elec insulator thermoplastic
elastomer; alumina fireproofing agent thermoplastic elastomer

IT **Polyethers**, uses and miscellaneous
(polyamide-, block, rubber, thermoplastic, nitrile rubber blends,
contg. alumina trihydrate, fire- and chem. resistant)

IT Rubber, synthetic
(polyamide-**polyether**, block, thermoplastic, nitrile
rubber blends, contg. alumina trihydrate, fire- and chem.
resistant)

IT **Polyethers**, uses and miscellaneous
(**polyester**-, block, rubber, thermoplastic, nitrile
rubber blends, contg. alumina trihydrate, fire- and chem.
resistant)

IT Polyamides, uses and miscellaneous
Polyesters, uses and miscellaneous
(**polyether**-, block, rubber, thermoplastic, nitrile
rubber blends, contg. alumina trihydrate, fire- and chem.
resistant)